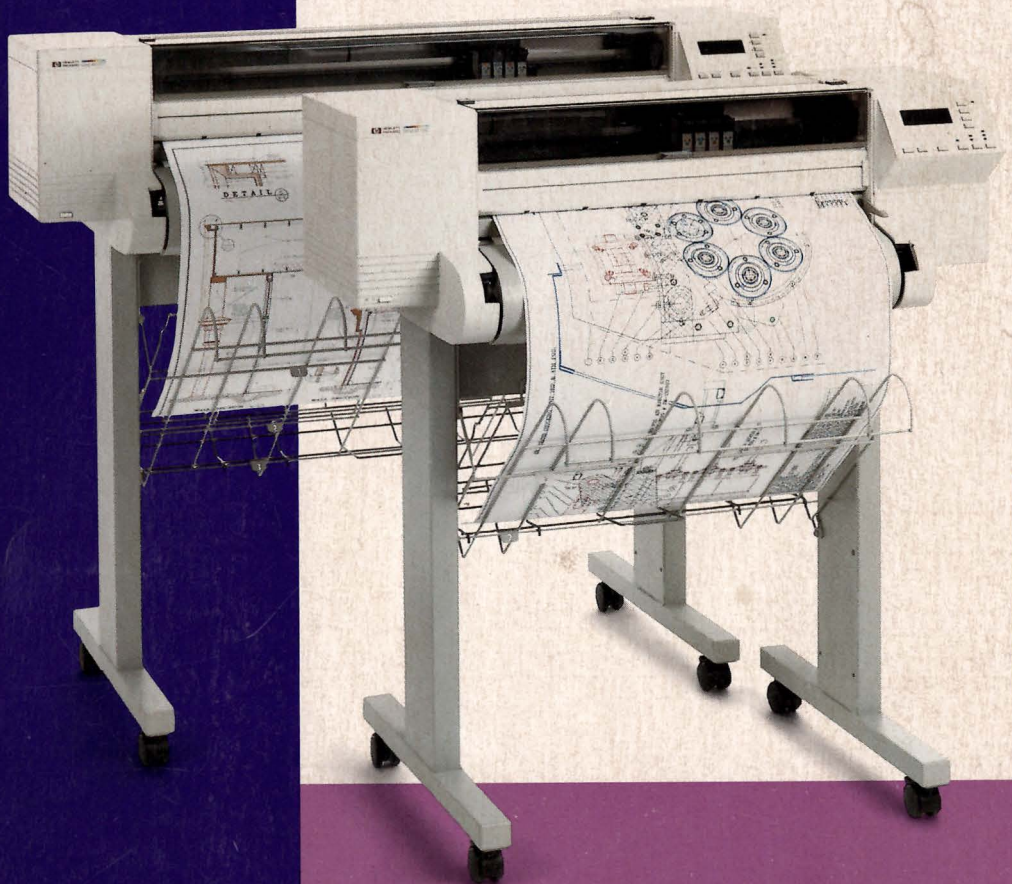


# HP DesignJet 650C Plotter

## Using the Front Panel



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	Setting Up for Plotting					Using the Front Panel				
Information accessibility	1	2	3	4	5	1	2	3	4	5
table of contents	1	2	3	4	5	1	2	3	4	5
chapter titles	1	2	3	4	5	1	2	3	4	5
section headings	1	2	3	4	5	1	2	3	4	5
cross references	1	2	3	4	5	1	2	3	4	5
index	1	2	3	4	5	1	2	3	4	5
Organization	1	2	3	4	5	1	2	3	4	5
Completeness	1	2	3	4	5	1	2	3	4	5
Accuracy	1	2	3	4	5	1	2	3	4	5
Reliability	1	2	3	4	5	1	2	3	4	5
language usage	1	2	3	4	5	1	2	3	4	5
page layout	1	2	3	4	5	1	2	3	4	5
Illustrations	1	2	3	4	5	1	2	3	4	5

**1=Far below  
expectations**

**2=Below  
expectations**

**3=Meets  
expectations**

**4=Exceeds  
expectations**

**5=Far exceeds  
expectations**

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Using the front panel	1	2	3	4	5
Loading media	1	2	3	4	5
Replacing pens	1	2	3	4	5
Troubleshooting	1	2	3	4	5

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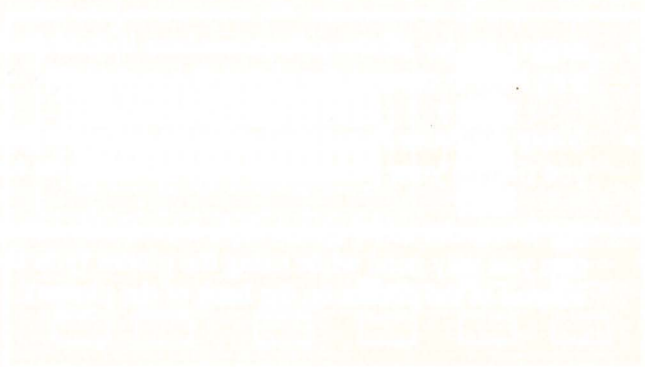
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---

## Using the Front Panel



### Looking at the Front Panel Controls

The front panel controls are used to operate the plotter. The controls include a power button, a cancel button, a status indicator, and a small display screen. The power button is used to turn the plotter on or off. The cancel button is used to stop a print job. The status indicator shows the current status of the plotter. The small display screen shows the number of pages printed and the current page number.

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---

# HP DesignJet 650C Plotter

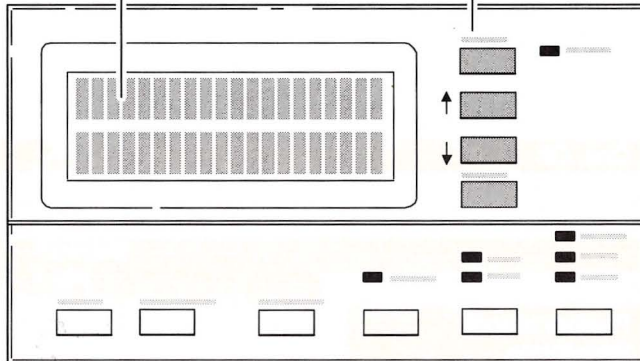
## Using your manuals

The following describes your plotter's three manuals.

- *Setting Up for Plotting* describes how to load media and pens, along with how to connect the plotter to a computer.
- *Using the Front Panel* (this manual) describes how to use the features you find on your plotter's front panel and in its menu structure.
- *HP DesignJet 650C Quick Reference Guide* summarizes some information you may need while using the plotter (you should place this manual in the pocket on the back of the plotter).

The short and full menus (shown on the following pages) display on this screen.

These buttons give you complete access to all menu options.



## Looking at the short and full menus

The plotter's front panel menu and its options gives you flexibility your software may not provide. Use the front panel either to designate your software as the source of plotting information or to define conditions that better meet your needs. Once set, many options do not need to be changed.

The plotter lets you condense the full menu to a short menu that effectively "hides" many menu options that are not frequently used. The following pages show all of the menu options. The shaded options are those that make up the short menu. The short menu mode is the factory default mode. Refer to chapter 3 (the Utilities menu) for switching menu modes.

---

**Menu** (Shaded=Short menu; Defaults indicated by ♦)

(1 of 2)

---

**Plot mgmt**

Queue mgmt=	<i>Plot # (nK vectors)</i> <i>Plot #=</i>	Copies=	1♦...99
		Delete plot	
		Move to Top	
		Statistics	Width, Length, RAM used
Nest=	Off♦ Optimal In order	Nest wait=	2 min♦, 30 sec, 5 sec
		Nest wait=	2 min♦, 30 sec, 5 sec
Queue=	On♦, Off		

---

**Demo Plot**Palette  
Samples

---

**Utilities**

Menu mode	Short♦, Full		
Accuracy	Restore factory Recalibrate	Create plot Measure plot	
Config Plot			
Default menu			
Statistics	Max X= <i>nnn</i> mm Max Y= <i>nnn</i> mm Code rev= <i>n.n</i> RAM present= <i>nn</i> MB Media= <i>media type</i> <i>currently loaded</i> ROM SIMM=None, Kanji, PostScript		

---

**Display data**

---

**I/O setup**

Modular	MIO specific menus		
RS-232-C	Config=	Factory♦ Config A Config B	
	Define config Factory Config A Config B	Baudrate=	38400, 19200, 9600♦, 4800, 2400, 1200
		Parity=	None (0)♦, Even, Odd, Mark
		Handshake=	Both♦ Hardwire Xon/Xoff

## Plotter setup

Lang=	7586, HP-GL/2♦	Timeout=	0.1, 0.5, 1, 2♦, 5, 10, 15, 20, 30 minutes
	PostScript*	Terminator=	Normal♦, Special
	HP-GL/2	Scale=	100%♦, 129%, 141%, 200%, 210%, 258%, 282%, 352%, 400%, 419%
Quality=	Software♦, Plotter		
Media bypass=	Off♦, On		
Pen check=	On♦, Off		
Contrast=	Dark Normal♦ Light		
Dry time=	Less Normal♦ More None		

## Pen Settings

Palette=	Software♦ Palette A Palette B Factory		
Merge control=	Off♦, On		
Define palette Palette A Palette B	Pen number <i>nn</i>	Width	0.13, 0.18, 0.25, 0.35♦, 0.50, 0.65, 0.70, 0.80, 0.90, 1.0, 1.4, 2.0, 3.0, 5.0, 8.0, 12.0 mm
		Color	0...255

## Page format

Size=	Inked area Software ISO	Best ISO A, A4-A1/A0
	ANSI	Best ANSI, A-D/E
	JIS	Best JIS B, B4-B2/B1
	ARCH	Best ARCH, ARCH A-D/E
	Oversize	Over A2, A1
Mirroring=	Off, On	
Margins=	Normal, Expand	
Rotate=	0, 90, 180, 270	

\* This is the default when the optional upgrade kit is purchased and installed.

---

## In This Book

While it's not necessary to read the manual from cover to cover, you should become familiar with its organization so that you can find information more quickly.

Chapter 1 describes how to use the front panel. Chapters 2–7 describe each of the front panel menu options. The following shows the front panel menu structure and how it relates to the chapters in this manual.

Status Chapter 1		
	—	<b>Plot mgmt</b> (Chapter 2)
	—	<b>Demo plots</b> (Chapter 1)
	—	<b>Utilities</b> (Chapter 3)
	—	<b>I/O setup</b> (Chapter 4)
	—	<b>Plotter setup</b> (Chapter 5)
	—	<b>Pen settings</b> (Chapter 6)
	—	<b>Page format</b> (Chapter 7)

Additionally, most messages that display on the front panel are listed in the Reference chapter, and a Glossary provides you with definitions for terms used in this manual with which you may or may not be familiar.

---

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## **Reference**

## **Glossary**

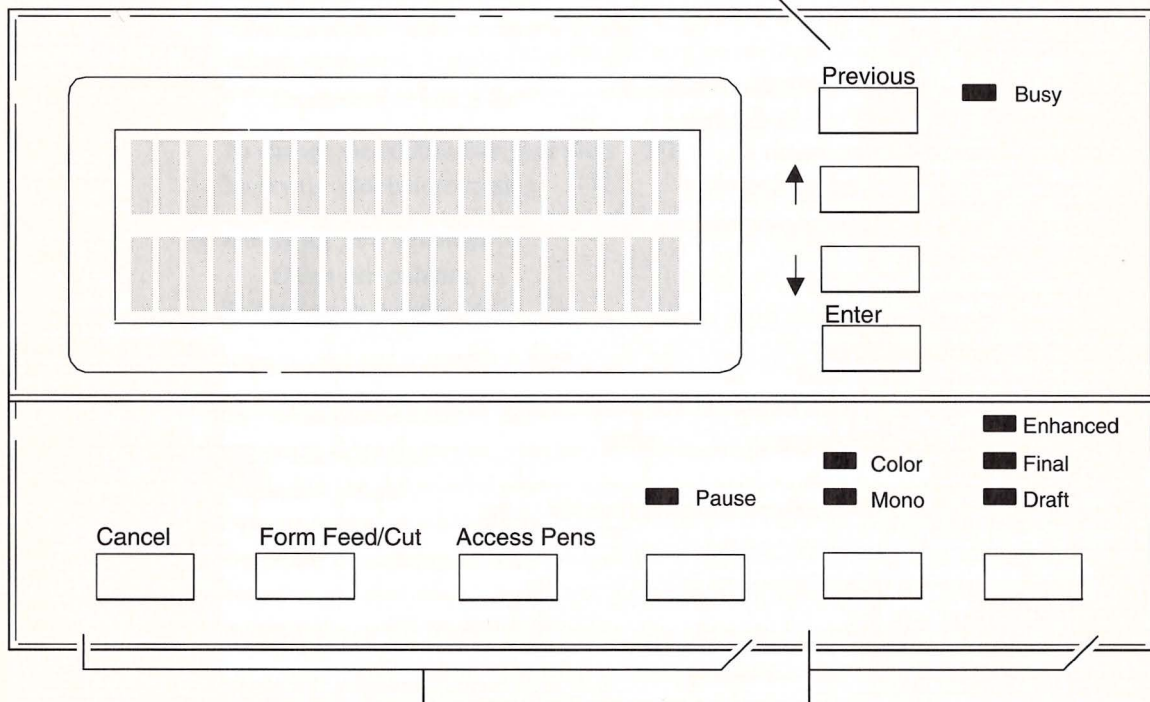
## **Index**



# Using the front panel

Virtually all interaction with the plotter involves using the front panel. This chapter explains how to use each set of buttons to access certain plotter features quickly.

Use the *menu* buttons to scroll through the menus and select the options you want.



Use the *action* buttons to quickly access common plotter functions.

Use the *plotting mode* buttons to define how the plotter renders your plot.

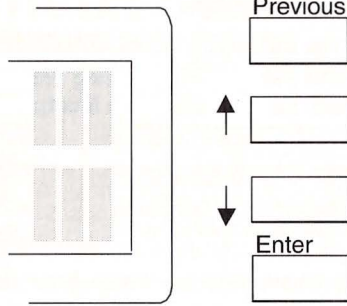
---

## Using the menu buttons

The front panel usually displays the Status screen, which tells you the current state of plotter conditions. For example, when you first turn on the plotter, it displays the message *Initializing*. When the message *Status: Ready for media* or *Status: Ready to plot* displays, you can send plot data from your computer or access any of the plotter menus to review or change settings.

The menu buttons are your primary method of finding and using your plotter's features.

**Previous** displays the previous menu level. It does not change any current menu selections.



**Enter** moves from the Status screen into the menus structure. It also selects a menu or confirms the displayed variable choice.

The ↑ and ↓ buttons scroll through menu options or respond to action or error messages.

## Moving through the menus

### Navigating the menu structure

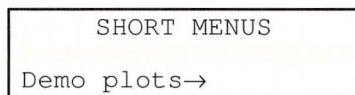
The front-panel display shows several different types of information.

- Menu level (and corresponding menu options).
- Messages (such as the current plotter status, errors, and prompts).

The following tells you how to interpret the menu format and conventions.

The top line of the display indicates the current menu level; the lower line shows one of the options for that level. The ↑ and ↓ buttons show you all of the options at that level. A right-arrow character (→) on the front panel display immediately following the option name on the lower line indicates another level of choices for that option.

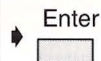
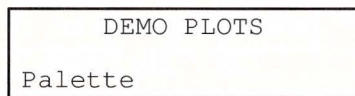
The top line indicates  
the current menu  
level



Pressing **Enter** moves you to the next  
menu level

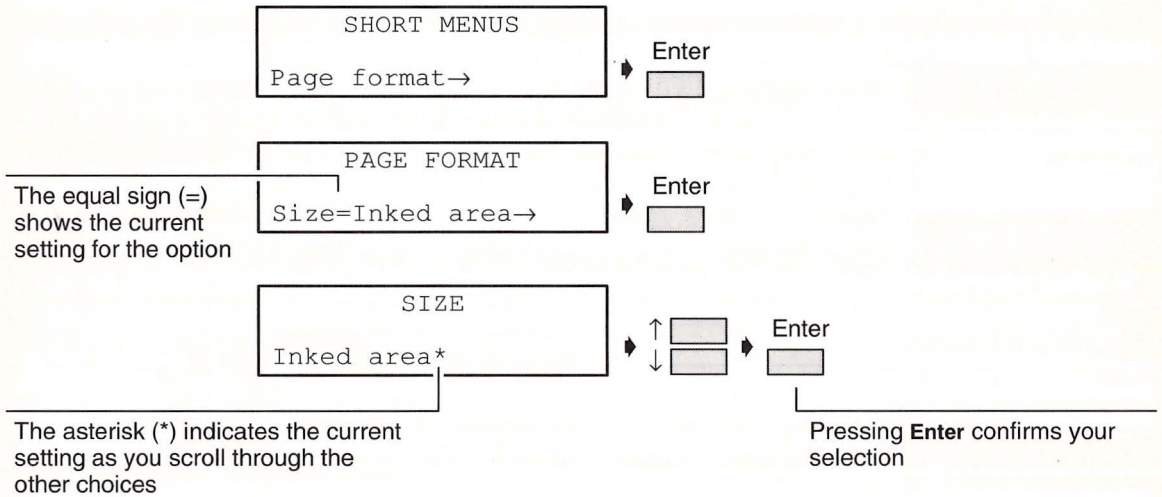
The → indicates the option  
has a submenu

If there is no right-arrow on the second line, pressing **Enter** confirms a setting (such as “on” or “off”), or causes the plotter either to perform a specific action (such as restoring menu options to their factory default settings) or plot specific data (as with a demo plot).



At the lowest menu level, pressing  
**Enter** confirms a selection, performs  
an action, or plots specific  
information

Oftentimes the option line includes an equal sign (=) followed by the current status of the option. When scrolling through the lowest level of options, the currently selected value for that feature is marked with an asterisk (\*).

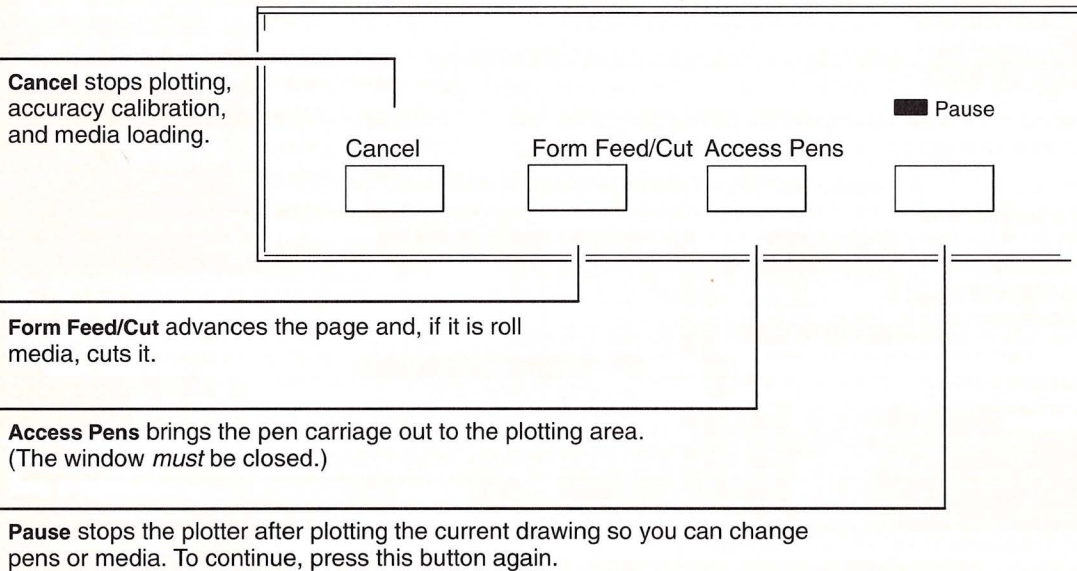


## Using the action buttons

---

### Using the action buttons

The action buttons let you quickly gain access to functions you will frequently use.



---

## To cancel a plot or process

- Press **Cancel** on the front panel.

***Cancelling plotting*** When plotting, **Cancel** stops plotting the current drawing but does not immediately remove it from the queue.

If queueing is on and there are no more drawings in the queue, the plot remains in the buffer. You can replot the cancelled plot by moving it to the top of the queue. If more plots are waiting in the queue, the plotter begins plotting the next plot. Refer to chapter 2 for details of queue management features.

If queueing is off, an incoming plot overwrites the cancelled plot in the buffer. If you want to replot the cancelled plot, you must resend it from your computer.

### ***Cancelling accuracy calibration***

When cancelling an accuracy calibration (detailed in chapter 3), the plotter advances the media and cancels the process. If you want to redo the accuracy calibration, you must start it from the beginning.

### ***Cancelling media loading***

When cancelling the loading of media, the plotter instructs you to remove the media before you can continue.

---

## To advance (and cut) the page

- Press **Form Feed/Cut** on the front panel.

When *sheet* media is loaded, the plotter advances the page and hangs it from the rollers. Pull the media to remove it from the plotter.

When *roll* media is loaded, the plotter advances the page 17 mm (0.65 inches) and cuts it.

- If the plotter is drying the ink, pressing **Form Feed/Cut** causes the plotter to ignore the ink-drying time and immediately drop the page into the media bin.
- If the plotter is waiting for a timeout period, pressing **Form Feed/Cut** causes the plotter to ignore the timeout setting and immediately begin plotting.

## **To access pens**

- Press **Access Pens** on the front panel.

The window must be down; the pen carriage does *not* move when the window is up. When the carriage stops near the front panel, lift the window to change or reseal pens.

---

## **To pause between plots in the queue**

- Press **Pause** on the front panel. The light flashes until the plotter finishes the plot. When the plotter finishes plotting the current plot, it stops and displays the Status screen and the message `Plotter paused`.

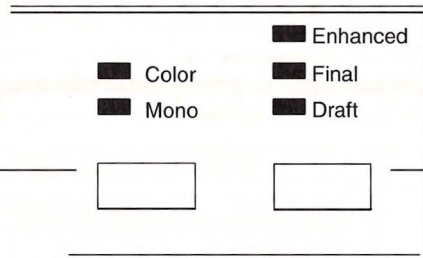
Use this feature when queueing is on and you want to change either the type of media you are using or the pens.

- **To resume plotting**, press **Pause** again. The plotter begins plotting the next plot in the queue.

---

## Using the plotting mode buttons

The plotting mode buttons let you tell the plotter whether you want your plot rendered in color or in black (and shades of gray), and what resolution you want the plotter to use.



The **Color/Mono** button switches between color mode and monochrome (black) mode.

The **print quality** button sets the resolution for your plot.

The plotter combines the selections from these two buttons, along with the media type you specify when loading, to set certain plotting conditions.

---

### CAUTION

**For color plots, always use HP special inkjet paper. Other media may not be able to absorb the ink, causing it to run and possibly damage plotter parts and stain clothing. You may also use HP special inkjet paper for monochrome plots.**

Color plots are produced at an addressable resolution of 300 dpi (dots per inch) regardless of the selected print quality setting. Monochrome enhanced plots are produced at an addressable resolution of 600 dpi. Plotting times will vary with your print quality selection (*Draft*, *Final*, or *Enhanced*), with the draft mode being the fastest for each media type. Draft mode also uses about half the ink of the other plotting modes.

## To switch color modes

- Press the **Color/Mono** button so that the light indicates the mode (color or monochrome [black]) you want for your plot.

Switching the color mode only affects subsequent plots in the queue. Plots already in the queue are rendered according to the setting that was in effect when the plotter received the file.

Note that if you have specified any media other than HP special inkjet paper when you loaded media, you cannot switch from monochrome to color mode. This prevents the plotter being damaged unintentionally since only HP special inkjet paper should be used in color mode.

---

## To set a print quality

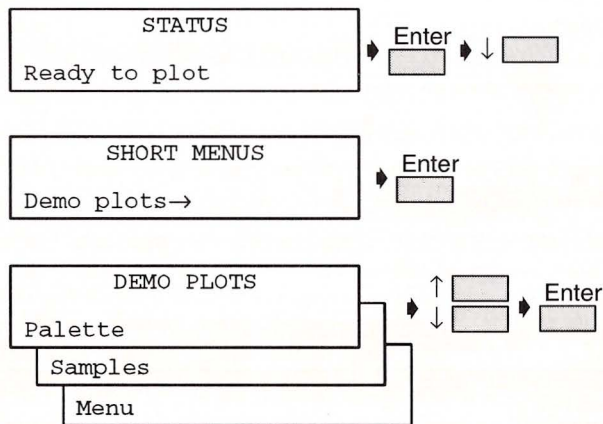
- Press the button to toggle between *draft*, *final*, and *enhanced* modes. Both *draft* and *final* modes are 300×300 dpi; the main differences are speed and line quality. Also, with the exception of film, *draft* mode uses significantly less ink than *final* mode. Note that you cannot mix the modes (e.g., you cannot set an *enhanced draft* mode).

You can switch between *draft* and *final* modes as you plot; the change becomes effective within seconds. However, you cannot change from *draft* or *final* mode to *enhanced* mode while plotting, nor can you change from *enhanced* mode to either of the others. When switching to or from *enhanced* mode in the middle of a plot, the plotter remains in its current mode and flashes the new mode light. The plotter switches to the new mode as soon as the current plot is finished plotting.

## To produce a demo plot

- 1 Load HP special inkjet paper and be sure the plotting mode is set to color.
- 2 From the `Status` screen, press **Enter**.
- 3 Press  $\downarrow$  to scroll to `Demo plots`, then press **Enter**.
- 4 Scroll to any of the demo plots listed and press **Enter**.

The demo plots include a plot of the plotter's internal palette and examples of the plotter's capability in several applications with a variety of line widths and colors. (Optional ROM kits for this plotter may include additional demonstration plots; if so, those plot names will also appear on this menu.)

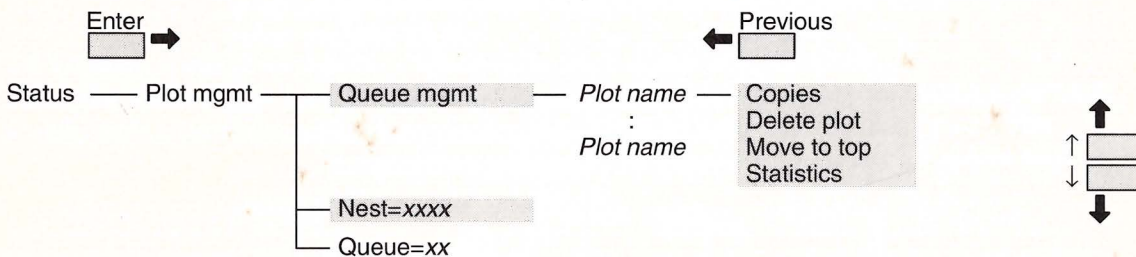




---

## Understanding queueing and nesting

The Plot management menu helps you control the activity of plots in the queue. The following shows the *Plot mgmt* menu options (shaded options are on the short menu).



Queueing lets your plotter accumulate incoming plots in a list, or *queue*. After you place the plot file in the plotter's queue, you can change the order of plots in the queue, delete a plot from the queue, or change the number of copies the plotter makes.

When queueing is on, you can choose to "nest" your plots (that is, place them side-by-side) to reduce the amount of wasted roll media. You cannot nest plots on sheet media.

If you have installed the optional upgrade kit for PostScript™ language support and are using that as your graphics language (Plotter setup/Lang), note that the queue is inactive. The plotter will accept only one file at a time.

---

## Reducing media waste

Your plotter may rotate plots to save roll media. To do so, you must meet the following two requirements.

- You must turn on nesting (queueing must also be on).
- Your software must specify the plot size when the plot file is sent or you must set the front panel **Page format/Size** option either to *Inked area* or to a specific page size.

When both conditions are met, the plotter rotates A/A4- and C/A2-size plots on 24" rolls, and B/A3- and D/A1-size plots on 36" rolls.

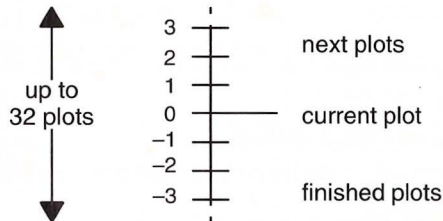
To get the most use of your media, do the following.

- Use roll media and turn on queueing and nesting. (Refer to instructions later in this chapter for turning on these features.)
- Set **Page format/Margins** to *Expand* (refer to chapter 7) and be sure that your software-specified plotting area plus margins fits within the page size you want.
- Set **Page format/Size** to *Inked area* (refer to chapter 7).

## Queueing

When you turn on queueing (Queue=On), you can send several plots to the plotter without waiting for each plot to finish before you send the next one. (The plotter plots the first drawing at the same time it is receiving the next one.)

The queue can hold up to 32 plots in the queue (depending on file size and available plotter memory). The plot currently plotting is in queue position 0. The next plot in the queue is at position 1, the following plot is at position 2, and so on. Once finished plotting, the plot at position 0 moves to position -1, the plot that was previously at position -1 moves to position -2, and so on.



By default, the plotter assigns names to the plots in the queue. The plotter-assigned name indicates how many thousands of vectors make up the plot. Note that the file size indicated on the plotter is not an indication of the amount of memory the plot requires. Refer to Plot mgmt/Queue mgmt/Statistics to learn memory use information.

Position in queue

**1:92K Vectors**

Number of vectors in the plot

Some applications let you give your plot a descriptive name, which it relays to the plotter. If your software supports this feature, the software filename displays rather than the plotter-assigned filename.

## Nesting

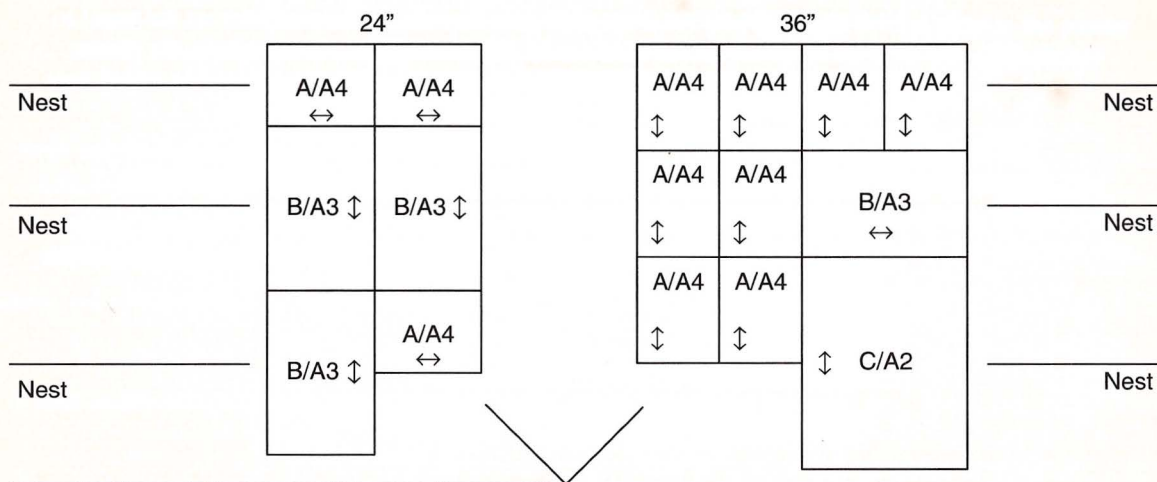
Nesting lets the plotter place plots side-by-side (horizontally across the page) to reduce the amount of wasted media. When nesting occurs properly, the plotter automatically rotates the plot both directions and uses the orientation which uses the least amount of media in a complete nest of compatible plots.

The following lists some of the determining factors for plot compatibility.

- Use of color (the plotter does not combine in the same nest plots that were defined as color with plots that were defined as monochrome according to the front panel button).
- Identical margins (normal or expanded).
- Page size standards (ANSI, ISO, etc.).
- Plotting resolution (Enhanced, Final, or Draft).

So that the plotter can make the best nest possible, it waits after a plot has been received to check if a subsequent plot will nest with it or with plots already in the queue. This waiting period is the “nest wait” time. The factory default nest wait time is 2 minutes. This means that the plotter waits up to 2 minutes after the last plot is received before plotting the final nesting pattern.

The following shows some typical nesting patterns on 24" and 36" media rolls.



The plotter can nest horizontally only. It cannot place another plot in either of these places.

## Selecting your nesting order

You determine how the plotter selects which plots to nest together. You can either have the plotter select the plots in the order in which they are sent to the queue or you can have the plotter select a combination of plots in the queue that makes up the best nest (that is, the combination that saves the most media).

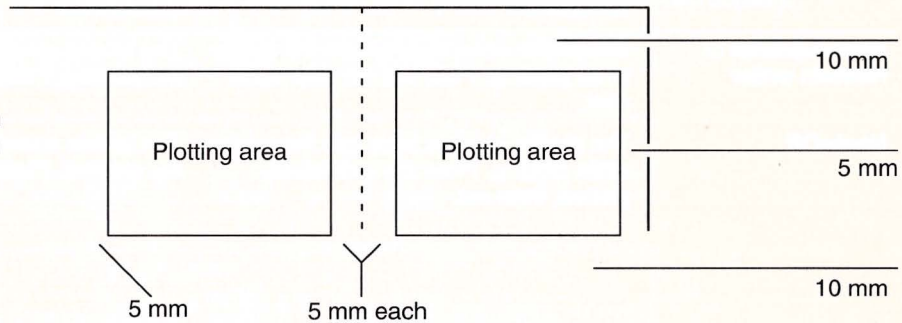
If the speed with which you receive your plots is most important, set nesting to *In order*; the plotter tries to nest plots in the order in which they are received. If you want to use the least amount of media, set nesting to *Optimal*; the plotter determines the combination of plots that saves the most media.

## Allowing for sufficient margins

The plotter adds margins to every plot it receives. In your software, you need to specify a plotting area so that when margins are added, you get the physical page size you expect. If your software specified plotting area does not allow for the sufficient margins, your plot may not be rotated as you would expect, wasting media.

We recommend you set Page format/Margins to Expand to make the most use of your media (refer to chapter 7). (Normal plot margins are 17 mm on the leading and trailing edges.) The following shows the margins (Page format/Margins=Expand) surrounding the plots in a nest.

When Page format/  
Margins=Expand,  
allow for 10 mm on the  
top and bottom of each  
plot and 5 mm on each  
plot side.



## Using queueing and nesting

Turn on queueing when you want to nest plots. Turn on nesting especially when you are plotting several smaller plots on roll media. Turn on queueing and nesting when you are plotting a long-axis plot.

Note that turning off queueing does not turn off nesting for plots already in the queue. The plotter plots all of the plots in the queue before accepting any more plot files. Note that as soon as you turn off queueing, the nesting setting changes to *off*. When queueing is turned on again, the plotter restores nesting to its previous setting. The following shows the interaction between the queueing and nesting features.

	Queue=On	Queue=Off
<b>Nest=Optimal or Nest=In order</b>	The plotter accepts plots into the queue while plotting. Plots are cut after each nest.	The plotter accepts plots only when it is not plotting. Plots are not nested.
<b>Nest=Off</b>	The plotter accepts plots into the queue while plotting. Plots are individually plotted, then cut.	The plotter accepts plots only when it is not plotting. Plots are not nested.

## Making copies of plots

- To make one or more copies of a plot in the queue (it has not yet been plotted), use `Plot mgmt/Queue mgmt/Copies`. Refer to “To make copies of a plot” later in this chapter.
- To make one copy of a plot that has already been plotted but is still in the queue, use `Plot mgmt/Queue mgmt/Move to top`. Refer to “To change the order of plots in the queue” later in this chapter.
- To make more than one copy of a plot that has already been plotted but is still in the queue, use `Plot mgmt/Queue mgmt/Copies` and `Plot mgmt/Queue mgmt/Move to top` (in that order).

Note that the display shows the total number of plots the plotter will create. `Copies=2` creates a total of two plots (not one original and two copies).

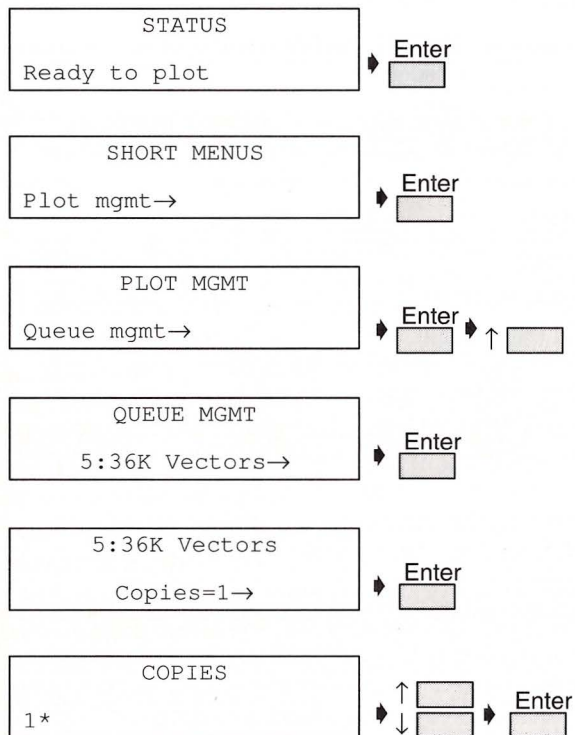
**Copies**

All menu modes  
Default: 1

**To make copies of a plot**

- 1 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.
- 2 Scroll to Queue mgmt and press **Enter**.
- 3 Press the scrolling buttons until the plot for which you want more copies displays. Then press **Enter**.
- 4 Press **Enter**, scroll to increase the number of copies (up to 99) or decrease the number and press **Enter**.

The setting you specify in this option overrides any value set by your software.



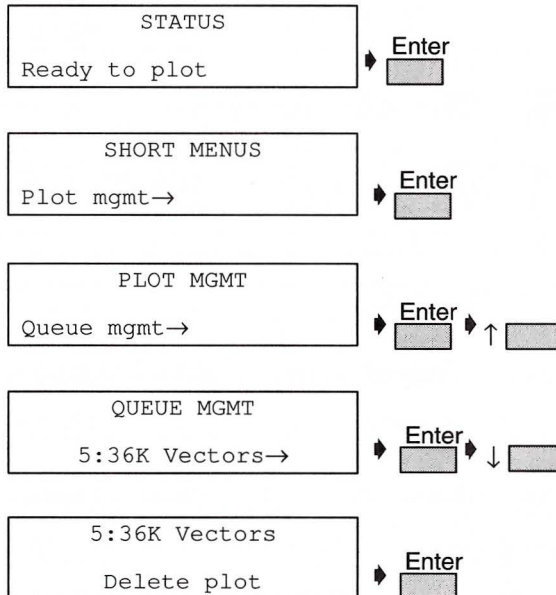
---

All menu modes

## To delete a plot from the queue

- 1 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.
- 2 Scroll to Queue mgmt and press **Enter**.
- 3 Press the scrolling buttons until the plot you want to delete displays. Then press **Enter**.
- 4 Scroll to Delete and press **Enter**. The plotter removes the file from the queue.

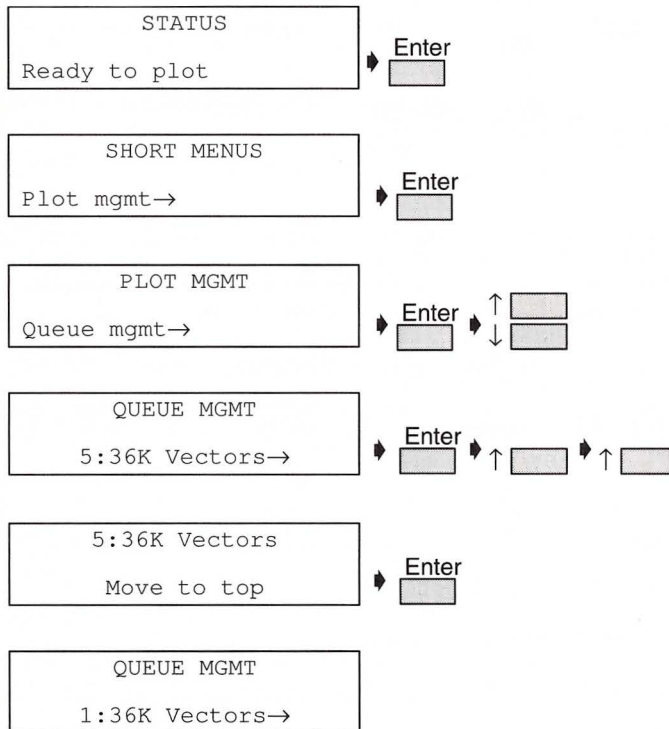
If the plot is currently plotting (the queue position is 0), press **Cancel** to stop the plot. Then you can delete it.



## To change the order of plots in the queue

- 1 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.
- 2 Scroll to Queue mgmt and press **Enter**.
- 3 Press the scrolling buttons until the plot you want to move displays. Then press **Enter**.
- 4 Scroll to Move to top and press **Enter**. The plotter moves the plot so that it is the next to be plotted.

If you do not want this plot to be nested with other plots, turn off nesting first.



All menu modes

## To get information about plots in the queue

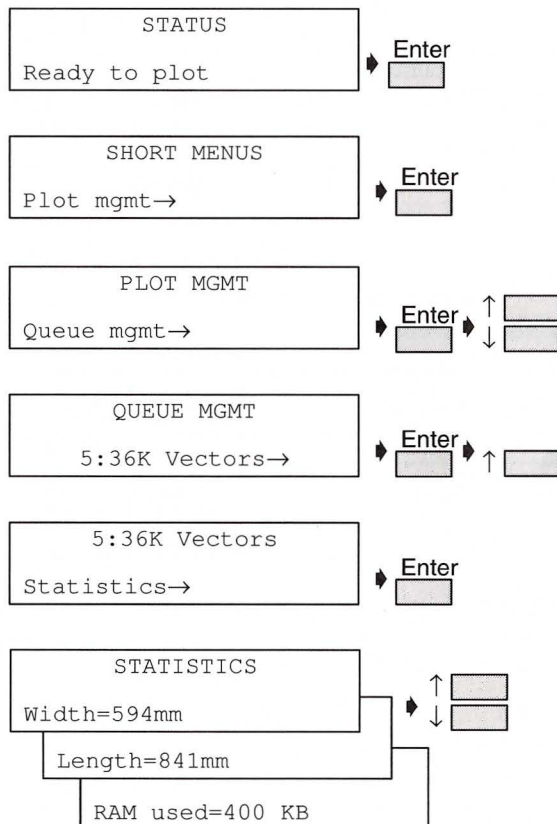
- 1 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.
- 2 Scroll to Queue mgmt and press **Enter**.
- 3 Scroll to the plot for which you want information and press **Enter**.
- 4 Scroll to Statistics and press **Enter**.

Width, Length

The plot size in millimeters. When nesting is on and your software does not specify the page size, these show the plotting area of the physical page in the plotter.

RAM used

The amount of memory used by the plot file (not the same as the plot's file size).



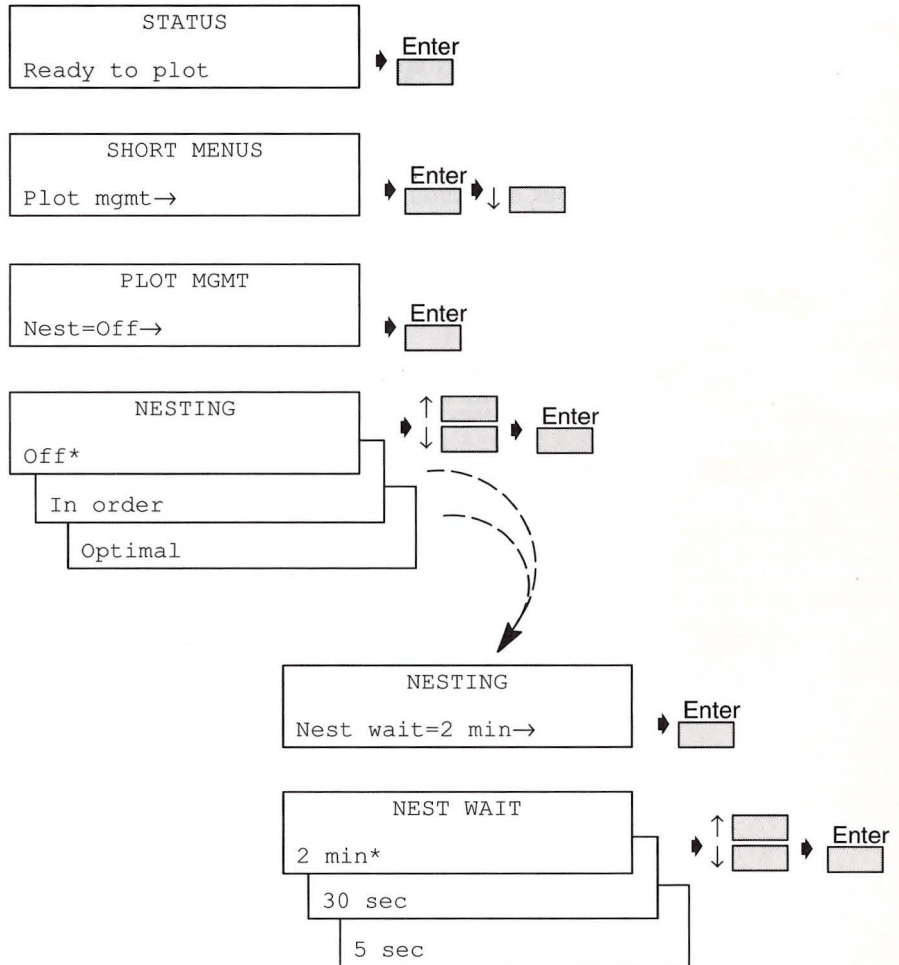
All menu modes  
Default: Off

## To turn on/off nesting

- 1 Load roll media.
- 2 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.
- 3 Scroll to Nest=(*Off*, *In order*, or *Optimal*). If you want to change the setting, press **Enter**. (To leave the setting as it is, press **Previous** and continue with your plotting.)
- 4 Use either scrolling button to change the setting, then press **Enter**.
- 5 If a nesting mode other than *Off* is selected, the plotter displays Nest wait=*n xxx*. This is the current amount of time the plotter waits for another plot before plotting the nest already in the queue. Use the following steps to change the wait time, or press **Previous** to continue without making a change.
  - a Press **Enter** at the Nest wait=*n xxx* prompt.
  - b Use the scrolling buttons to display the wait time you want and press **Enter**.

Queuing must be on for the nesting feature to work. Refer to “To turn on/off queueing” later in this chapter.

Off	(Default.) The plotter does not nest plots; it plots each drawing and advances the page before plotting the next plot.
In order	When possible, the plotter nests sequential plots in the queue.
Optimal	The plotter scans the plots in the queue and plots them so that the least amount of media is used.

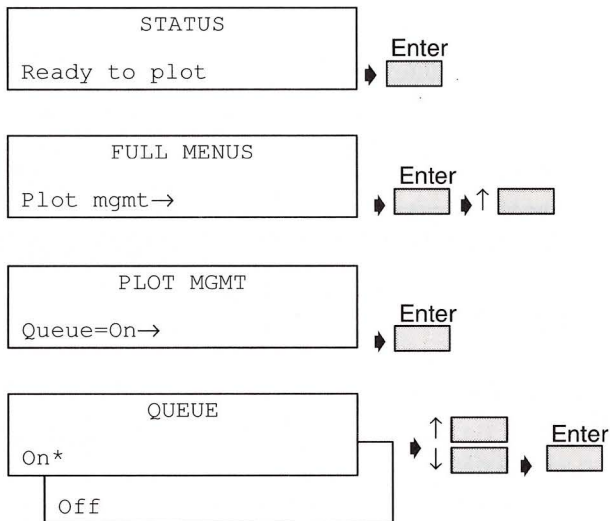


**Queue**

Full menu mode  
Default: On

**To turn on/off queueing**

- 1 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.
- 2 Press **↑** to scroll to Queue=(On or Off).
- 3 Press **Enter**, then scroll to the queueing status you want and press **Enter**; otherwise, press **Previous** to leave the setting as it is.



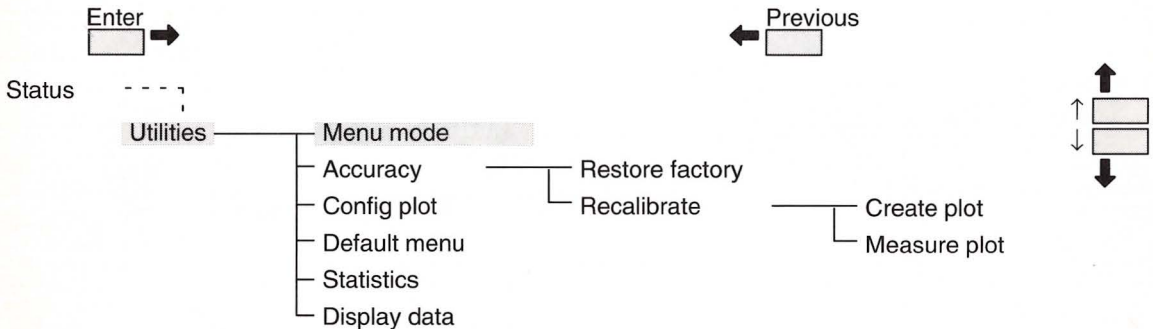


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## Using plotter utilities

### Reviewing the Utilities menu

The Utilities menu contains several functions to help you get the most out of your plotter. The following shows the Utilities menu (shaded options are on the short menu).

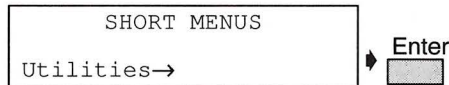


Use this menu to switch between the short and full menu modes. This menu also lets you review information stored internally in the plotter (such as the type of media loaded). You can diagnose some plotter problems using the configuration plot or have the plotter print your plot file instructions (rather than producing a plot). You can also use this menu to reset the plotter menu options to their factory defaults (without affecting the I/O setup or pen palettes).

All menu modes  
Default: Short

## To switch between the short and full menu

- 1 From the Status screen, press **Enter**. Press ↓ two times to scroll to Utilities, then press **Enter**.
- 2 Scroll to Menu mode and press **Enter**.
- 3 Press either scrolling button to display the other option and press **Enter**.



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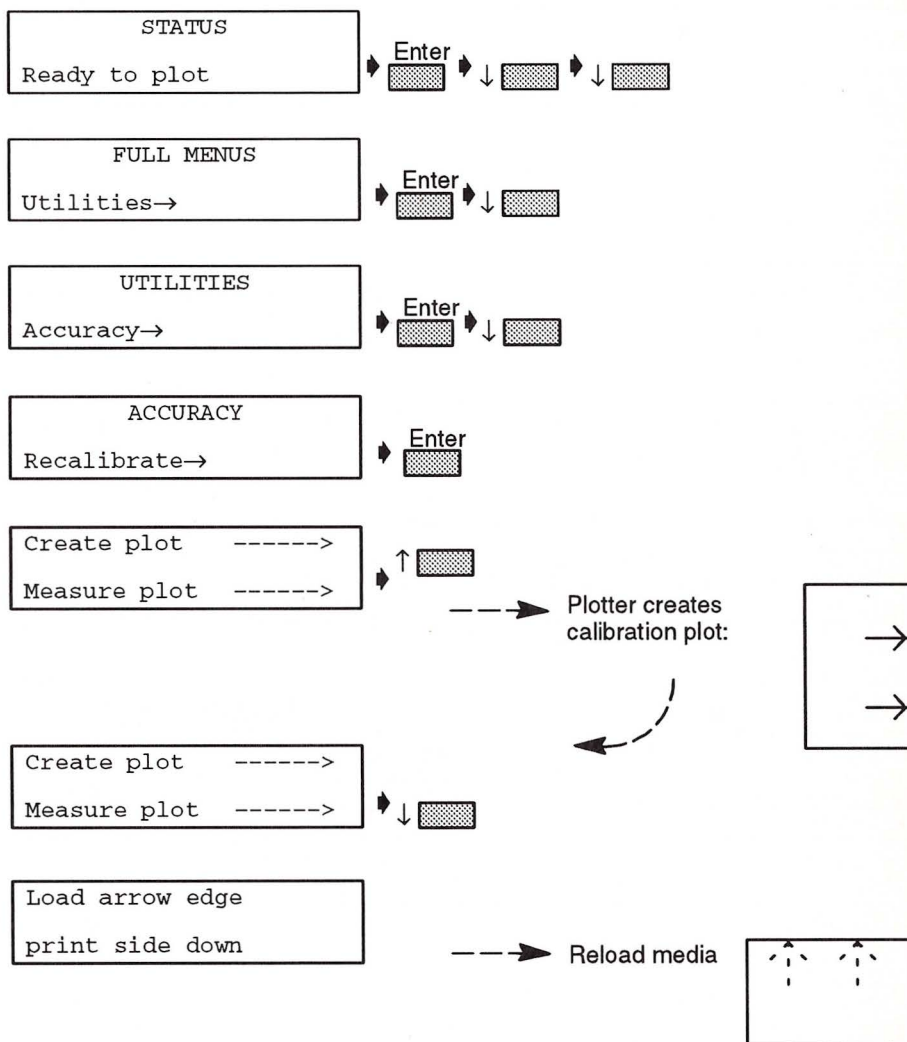
## To calibrate the plotter

- 1 If you have calibrated the plotter and want to restore the factory calibration settings, begin with step 3.
- 2 Load a sheet or roll of polyester film for greatest accuracy. The physical size of the media *must* be D/A1 or E/A0.  
  
If you load a D/A1-size sheet on an E-size plotter model, hold the film by the short edges and load the long edge into the plotter.
- 3 From the Status screen, press **Enter**. Press ↓ two times to scroll to Utilities, then press **Enter**.
- 4 Press ↓ to scroll to Accuracy and press **Enter**.
- 5 If you are recalibrating the plotter, scroll to Recalibrate and press **Enter** (continue with the next step). If you are restoring the factory calibration settings, scroll to Restore factory and press **Enter** (this completes the Restore factory procedure).
- 6 Press ↑ to create a calibration plot.
- 7 Once the plot is finished, remove it (press **Form Feed/Cut** if using roll media) and rotate the plot 90° counterclockwise and reload it *with the printed side down*.
- 8 Return to this menu and select Measure plot.

If your measured accuracy, media thickness, or environmental conditions vary greatly from the factory standards, you may want to recalibrate the plotter using this procedure. (Refer to “References” in the manual *Setting Up for Plotting*.)

Once created, you can reuse the calibration plot to recalibrate the plotter’s accuracy later. Store the plot flat or rolled with the print side out. If the film takes a curl in the wrong direction it can become impossible to load into the plotter.

Another, less accurate way to check the plotter’s accuracy is to print the Configuration Plot (refer to “To plot configuration information” later in this chapter) and measure the distance between the cross marks. The measured value should be 500 mm.



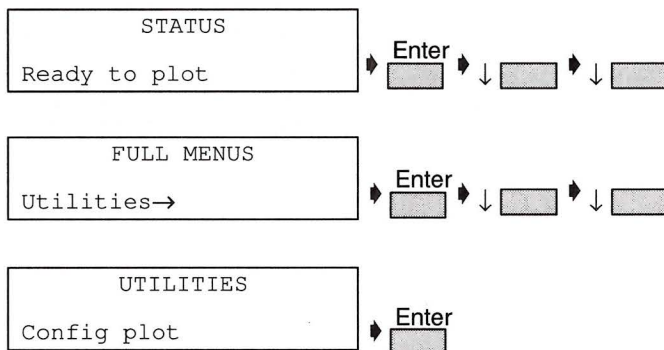
## To plot configuration information

- 1 Load D/A1- or E/A0-size media.
- 2 From the Status screen, press **Enter**. Press ↓ two times to scroll to Utilities, then press **Enter**.
- 3 Press ↓ twice to Config plot and press **Enter**. The plotter begins creating the configuration plot immediately.

The configuration plot prints accuracy marks 500 mm apart, shows the current hard-clip limits (outlining the printable area), along with the following information.

- Page format/Rotate, /Mirroring, /Margins settings.
- Plotter setup/Pen check setting.
- Pen settings palette settings.
- I/O setup settings.
- Utilities/Statistics information.

Use the configuration plot to help diagnose a plotter problem by referring to its list of front panel settings, including I/O information.



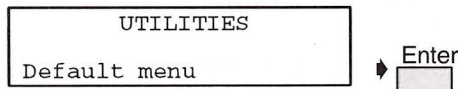
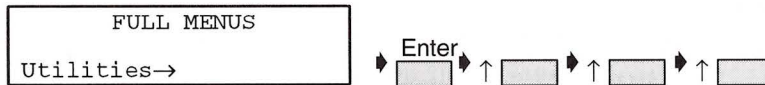
---

Full menu mode

## To reset the plotter's menu defaults

- 1 From the Status screen, press **Enter**. Press  $\downarrow$  two times to scroll to Utilities, then press **Enter**.
- 2 Press  $\uparrow$  three times to scroll to Default menu and press **Enter**.

The plotter returns all menu options to their factory defaults.



## To review plotter information

- 1 From the Status screen, press **Enter**. Press ↓ two times to scroll to Utilities, then press **Enter**.
- 2 Press ↑ twice and press **Enter**. Use the scrolling buttons to review statistical information the plotter tracks internally.

The plotter tracks the following information.

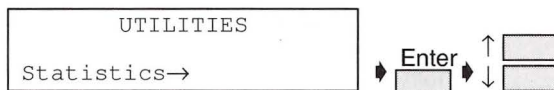
**Max X/Max Y** Specifies the size of each axis.

**Code revision** Indicates the revision number of the plotter's internal code.

**RAM present** Specifies the number of megabytes (MB) of memory in the plotter.

**Media** Indicates the media type you specified when loading media. If this setting is incorrect, remove and reload the media, specifying the correct media type.

**ROM SIMM** Indicates the presence of a ROM SIMM in the plotter (and, when necessary, tells you the version number of the ROM SIMM installed).

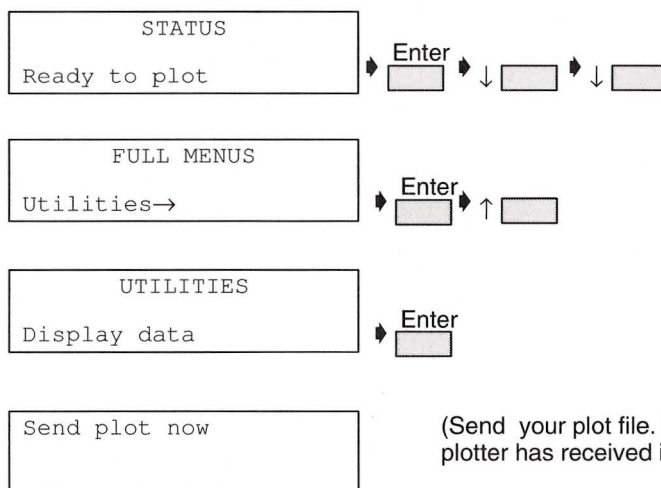


## Full menu mode

**To diagnose plot file problems**

- 1 Let the queue empty, then load plain paper (either roll, or sheet in a vertical/portrait orientation).
- 2 From the Status screen, press **Enter**. Press ↓ two times to scroll to Utilities, then press **Enter**.
- 3 Press ↑ to scroll to Display data and press **Enter**.
- 4 Send the plot file you want to examine to the plotter. (The plotter receives the plot file but does not plot it.)
- 5 When the plotter has finished receiving the file, press the front panel **Enter** button. (This indicates the end of the plot file; if you do not press **Enter**, the plotter continues to receive plot data without plotting it.)

Once you press the **Enter** button (step 5), the plotter plots two A/A4-size pages; the first page shows the characters at the beginning of the file, the second page shows the characters at the end of the file. Pressing **Enter** also turns off the Display data feature. (The plotter prints non-ASCII\* plot files in hexadecimal notation.)



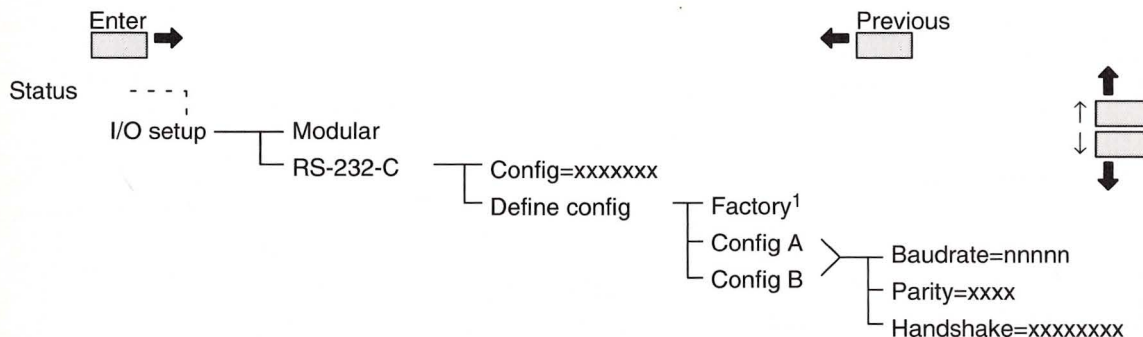
\* American Standard Code for Information Interchange

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Setting interface conditions

## Setting interface conditions

The I/O setup menu helps your computer and plotter communicate. You must be in the full menu mode to use the I/O setup menu.



### Interface considerations

Your plotter comes standard with a parallel and serial interface. A parallel interface is always recommended because it is faster than using a serial (RS-232-C) interface. Also, a parallel interface requires no front panel setup. The plotter is also setup to handle a modular interface option (such as an HP JetDirect card). The setup procedures for modular interfaces are specific to themselves; refer to the documentation that comes with your modular interface option.

After it receives each plot, the plotter automatically scans the plotter's I/O ports for incoming plot files. You do not need to turn off the plotter and then turn it on again to switch from one I/O port to another.

<sup>1</sup> You can only view the factory settings; you cannot change them.

## **Serial interfaces**

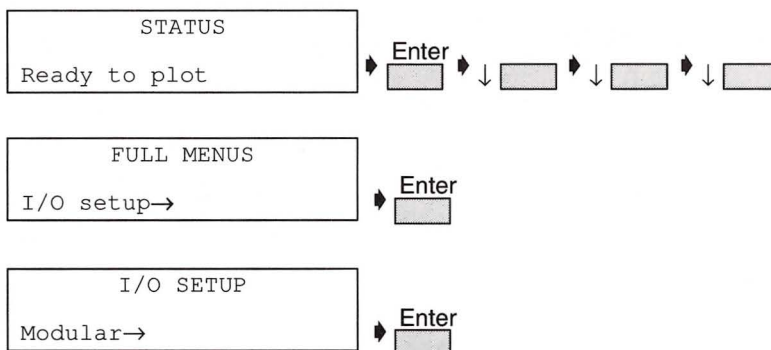
When using a serial interface, you must specify certain characteristics through the front panel—such as the baud rate, handshaking method, and parity. (You may need to refer to your computer or software documentation for this information.) All three of these characteristics must match with your computer, software, and plotter or your plotter will not be able to plot your drawing.

If you use different software applications that require different settings, you may want to define separate configurations for each of these serial settings. You can define up to two serial configurations that differ from the factory configuration. By setting up these serial configurations ahead of time, you can quickly change from one configuration to another (using the I/O menu) as you switch one software application to another.

## To select the modular interface

- 1 Install the interface card according to the instructions that accompany it.
- 2 From the Status screen, press **Enter**. Press ↓ three times to scroll to I/O setup, then press **Enter**.
- 3 Press **Enter** to setup card you just installed in the modular interface slot on the back of the plotter.
- 4 Follow the instructions on the front panel for setting up the MIO.

Required instructions for the modular interface option are specific to the option you select. Refer to the documentation that accompanies the interface card.

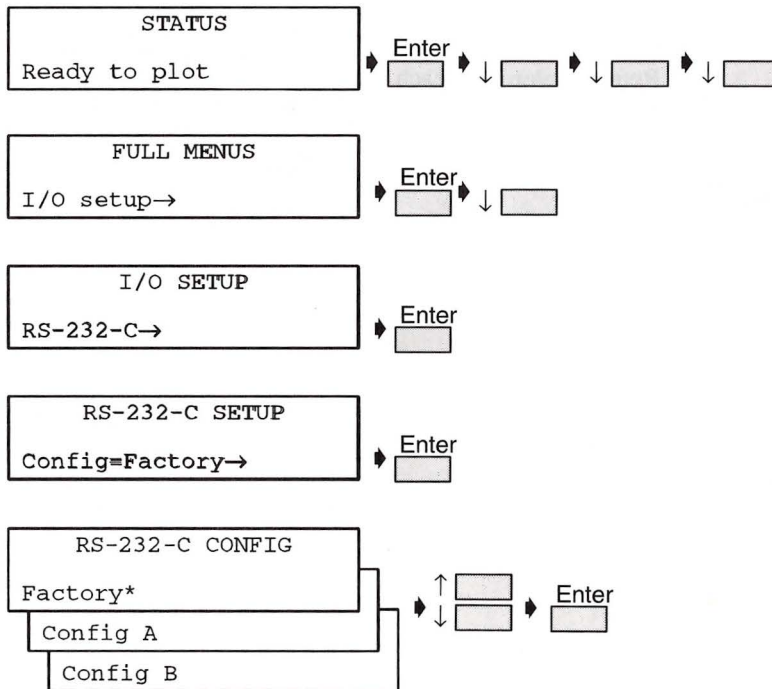


Full menu mode  
Default: Factory

## To load a serial configuration

- 1 From the Status screen, press **Enter**. Press ↓ three times to scroll to I/O setup, then press **Enter**.
- 2 Press ↓ to scroll to RS-232-C and press **Enter**. The plotter displays the currently loaded serial configuration.
- 3 Press **Enter**, then use the scrolling buttons until the configuration you want to use displays and press **Enter**.

Initially, all serial configurations are the same. Define your new configuration first (I/O setup/Define config), then load it using this option. Refer to “To change baud rate, handshake, or parity” later in this chapter.



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Full menu mode

Defaults:

Baudrate—9600

Parity—None (0)

Handshake—Both

## To change baud rate, parity, or handshake

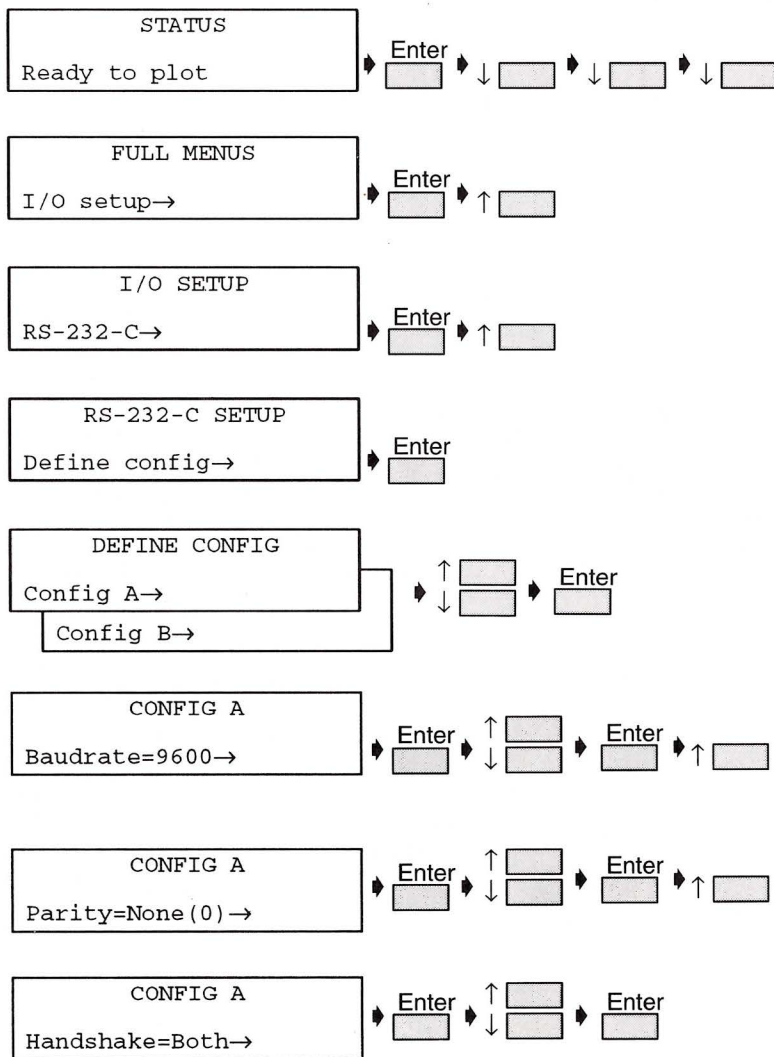
- 1 From the Status screen, press **Enter**. Press ↓ three times to scroll to I/O setup, then press **Enter**.
- 2 Press either scrolling button to scroll to RS-232-C and press **Enter**.
- 3 Press either scrolling button to scroll to Define config and press **Enter**.
- 4 Use the scrolling buttons to display the configuration you want to change (A or B), then press **Enter**. (Note that you cannot change the Factory configuration, you may only view its settings for reference while you are in this menu.)
- 5 Scroll to the configuration options (*Baudrate*, *Parity*, and *Handshake*) as necessary. When the option you want displays, press **Enter**. The plotter displays the current setting for that option.
- 6 Use the scrolling buttons to review the other choices. When the setting you want displays, press **Enter**.
- 7 Return to step 5 for each serial configuration option you want to change.

For each of the serial settings below, choose the setting that matches your computer's capabilities.

Baud rate options are: 38400, 19200, 9600 (Default), 4800, 2400, and 1200.

Parity options are: None (0), Even, Odd, And Mark. The default is *None (0)*.

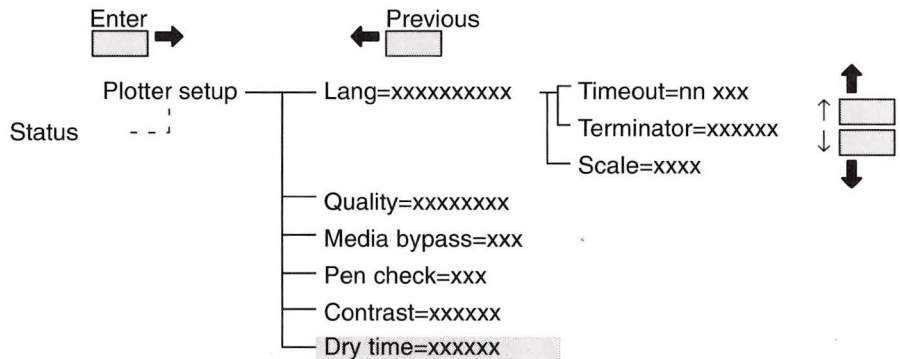
Handshake options are: Hardwire, Xon/Xoff, and Both (default).





## Configuring your plotter

The Plotter setup menu helps you set the conditions under which your plotter operates. The following shows the Plotter setup menu (shaded options appear on the short menu).



### Changing the plotter's graphics language setting

The plotter's factory default graphics language mode (7586, HP-GL/2) should work for most software applications. If you are installing new software, check for the plotter's name in the list of output devices or for a device with "HP-GL/2" in the name.

If you are using an application for an HP 7586B pen plotter or another HP-GL device, send a short test file to test how the plotter reacts. If the plotter waits about two minutes after the plot transmission before plotting data or plots in one quadrant of the page, you might want to change one or more of the graphics language settings (i.e., graphics language, timeout, or terminator).

## Sending PostScript™ language files

If you want to send PostScript language files, you need to purchase and install an optional upgrade kit that provides your plotter with this ability. The following information is important when you have upgraded the plotter so that it accepts PostScript language files.

- The `Plotter setup/Lang` setting you choose depends on the driver you are using. For most situations, set `Plotter setup/Lang` to the graphics language you will use most often. When you need to plot a file in the other graphics language, manually change the setting on the front panel.

When using the Microsoft® Windows or AutoCAD™ drivers shipped with your plotter, set `Plotter setup/Lang` to `PostScript`. With this setting, the plotter can accept all PostScript language files, but not HP-GL or HP-GL/2 files from applications other than Windows or AutoCAD.

When using the drivers for the Windows and Apple Macintosh environments shipped with the PostScript upgrade kit, set `Plotter setup/Lang` to `7586, HP-GL/2`. With this setting, the plotter can accept all HP-GL or HP-GL/2 files, but not PostScript language files from other applications.

- If you are using the plotter with a network spooler, consider modifying the spooler to automatically insert the PDL language-switching commands at the beginning and end of each file. This allows the plotter to switch automatically into the correct graphics language for your current plot and returns the plotter to the front panel graphics language setting for subsequent plots. Refer to the PDL summary in the manual *Setting Up for Plotting*.
- Queueing and nesting are not supported with PostScript language files. The plotter accepts one PostScript language plot at a time and does not support replotting of these files.
- PostScript language files always print at 300 dpi, including monochrome enhanced mode (which normally prints at 600 addressable dpi).
- You can use the scaling feature (`Plotter setup/Lang/PostScript/Scale`) to enlarge small-format media plots to large-format media sizes. This works with most PostScript language files.

## Ensuring quality plots

The **Quality** feature of the plotter lets you determine the priority for setting print quality. Some software specifies the highest quality setting without allowing you to change it. This means that your software might not plot in draft or final modes—only in enhanced. For such software, selecting **plotter** gives you control over the quality of your plots—the plotter uses the front panel setting.

**Pen check** ensures that all of the nozzles on the pens are working at the beginning of each plot and that the pens are seated properly in the pen carriage slots. If the plotter detects a problem, it displays an appropriate message to let you know how to correct the problem.

**Contrast** lets you increase or decrease the amount of black ink in your plots. Change this setting only when your plots appear too light or too dark.

**Dry time** helps by letting the ink on the plot dry before the plotter cuts the page (from roll media) and drops it into the bin. Not only will this keep the plot from smearing, but it also keeps the other plots in the bin clean. If you are doing a series of draft plots and are not concerned about the cleanliness of the plots, you can set the ink drying time to *None*. However, handle the plots carefully to avoid staining your hands and clothing.

---

## Letting the plotter help you load poorly cut media

Persistent difficulty loading media might indicate poorly cut media. That is, the media width on the leading edge is different from the width of the trailing edge. `Media bypass` helps you compensate for the shape of some poorly cut media. When you properly load the leading edge of poorly cut media along the perforated line on the platen, you may notice the trailing edge displaces from the line by a small distance and the plotter will not accept the media. The plotter can accept poorly cut media that displaces less than 1.0 cm from the perforated line.

Media that is cut properly should not need the help of the `Media bypass` feature. In fact, using this feature for properly cut media lets you load it crookedly, possibly skewing your plot on the page.

Full menu mode

Default:

7586,HP-GL/2

## To set a graphics language mode

- 1 From the Status screen, press **Enter**. Press  $\uparrow$  three times to scroll to **Plotter setup**, then press **Enter**. The currently selected language mode displays.
- 2 Press **Enter**, then a scrolling button to review the graphic language options.
- 3 When the language you want the plotter to recognize displays, press **Enter**.

*If you select "7586, HP-GL/2", the plotter displays two more menus for you to confirm or change.*

- a The plotter displays the current timeout setting. Press **Enter** and use the scrolling buttons until the timeout setting you want displays and press **Enter**.
- b The plotter displays the current file terminator set. The *only* time you should need to change from the "normal" terminator set to the "special" set is when you are using an obsolete HP 7586 driver and your plots are incomplete.

*If you select "PostScript", you can also elect to scale plot files to a larger media size.*

7586, HP-GL/2

(Default and recommended setting.) The plotter accepts either HP-GL/2, or HP-GL instructions (written for the obsolete HP 7586 pen plotter). Use this setting, also, when sending raster data.

HP-GL/2

The plotter accepts HP-GL/2 instructions only.

PostScript

(Displays—and is the default setting—when the optional upgrade kit is installed.) The plotter accepts only PostScript language files. Refer to the following to scale a small plot to larger page size. The scaling factors are cumulative with software settings.

### To scale your ANSI A PostScript language file to...

	ANSI B	ANSI C	Arch C	ANSI D	Arch D	Arch E1	ANSI E	Arch E
Use...	129%	200%	210%	258%	282%	352%	400%	419%

### To scale your ISO A4 PostScript language file to...

	ISO A3	ISO/JIS A2	OS A2	ISO/JIS A1	OS A1	ISO/JIS A0	OS A0
Use...	129%	200%	210%	258%	352%	400%	419%

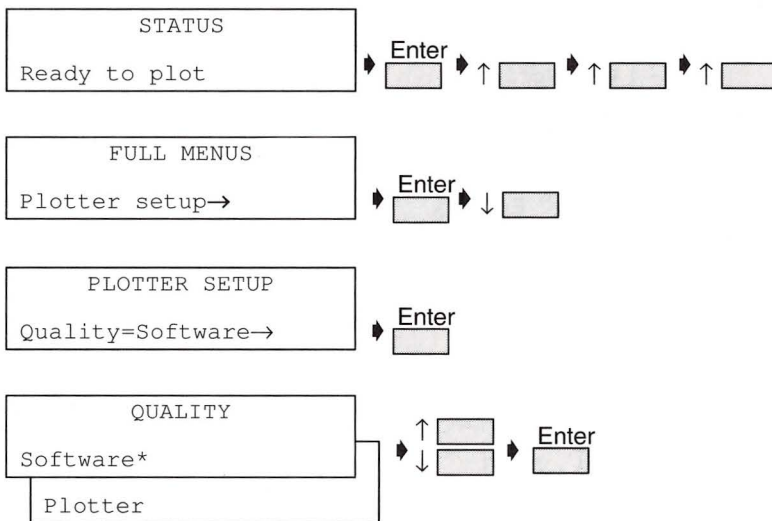


Full menu mode  
Default: Software

## To set print quality priority

- 1 From the Status screen, press **Enter**. Press  $\uparrow$  to scroll to Plotter Setup, then press **Enter**.
- 2 Press  $\downarrow$  once to display the Quality setting (either *Software* or *Plotter*).
- 3 To change the setting, press **Enter**, scroll to the setting you want, then press **Enter**.

When Quality=Software, the printing quality is the last setting either sent by the software or set on the plotter. When Quality=Plotter, all quality settings sent by the software are ignored. The print quality is *Draft*, *Final*, or *Enhanced* as set by the front-panel button.



Full menu mode  
Default: Off

## To compensate for poorly cut media

- 1 From the Status screen, press **Enter**. Press  $\uparrow$  three times to scroll to **Plotter setup**, then press **Enter**.
- 2 Scroll to display the current **Media bypass** setting (either *On* or *Off*).
- 3 Press **Enter**, then press either scrolling button to change the setting and press **Enter**.

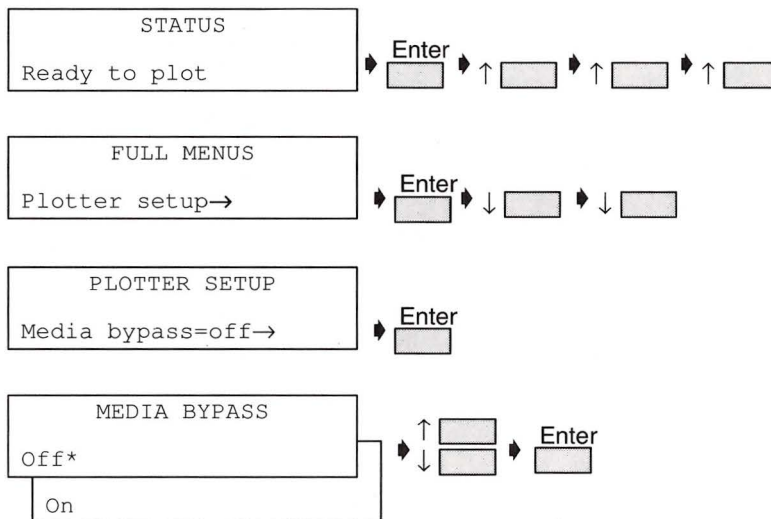
Off

(Default.) The plotter does not accept poorly cut media with a displacement more than 0.5 cm from the perforated line on the plotter's platen.

On

The plotter can accept poorly cut media that displaces up to 1.0 cm from the perforated line on the plotter's platen.

This setting is not saved when you turn off the plotter; the next time you turn on the plotter, the bypass setting is *off*.



## Pen check

Full menu mode  
Default: On

### To turn on/turn off pen checking

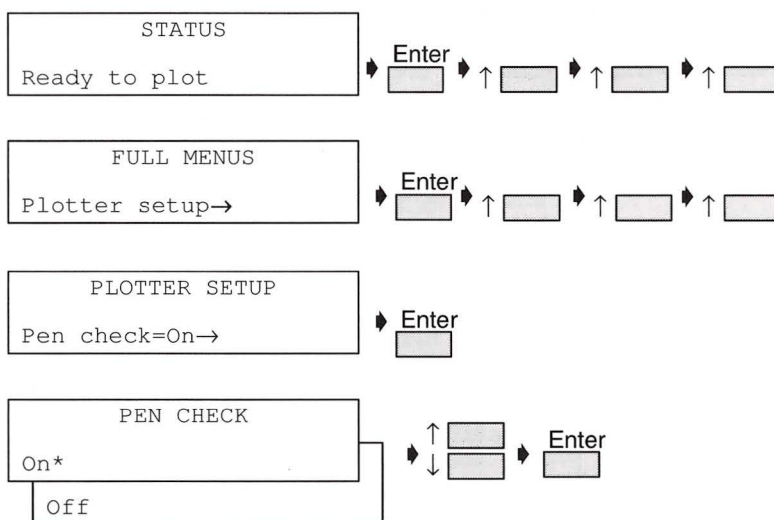
- 1 From the Status screen, press **Enter**. Press  $\uparrow$  three times to scroll to Plotter setup, then press **Enter**.
- 2 Scroll to Pen check and press **Enter**.
- 3 Press either scrolling button to change the setting and press **Enter**.

On

(Default and recommended setting.) The plotter checks the pens before and after every plot to make sure the pens are seated properly in the pen carriage slots and that all of the nozzles are working.

Off

The plotter checks the pen nozzles only when the plotter is turned on.

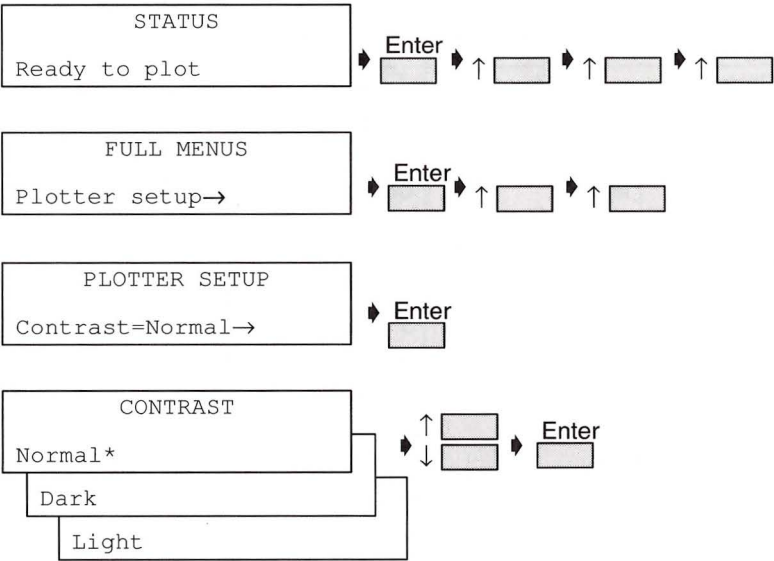


Full menu mode  
Default: Normal

## To change the contrast for your plots

- 1 From the Status screen, press **Enter**. Press  $\uparrow$  three times to scroll to Plotter setup, then press **Enter**.
- 2 Scroll to Contrast and press **Enter**.
- 3 Scroll to the contrast setting you want and press **Enter**.

The plotter changes the contrast for your plots by adding or reducing the amount of black ink in the plot.



**Dry time**

All menu modes  
Default: Normal

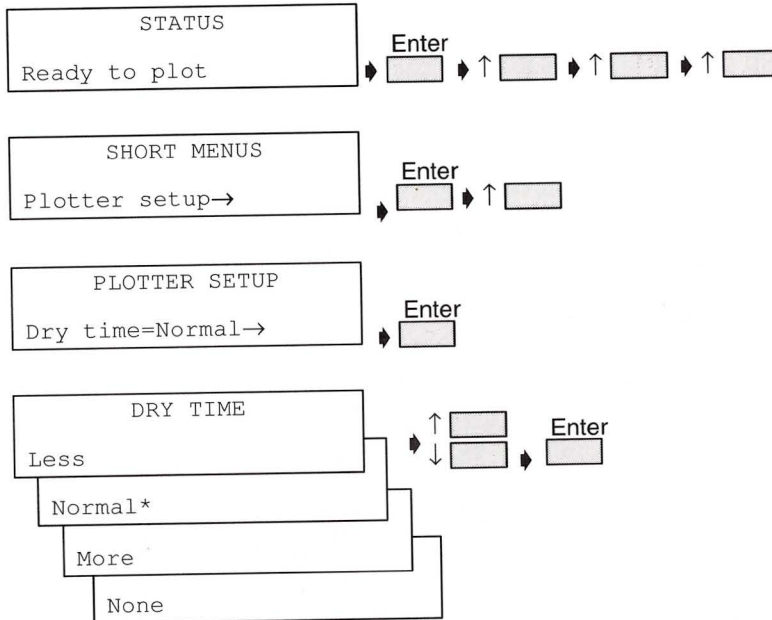
**To dry the plot before cutting**

- 1 From the Status screen, press **Enter**. Press  $\uparrow$  three times to scroll to **Plotter setup**, then press **Enter**.
- 2 Press  $\uparrow$  to display the current **Dry time** setting and press **Enter**.
- 3 Use the scrolling buttons to review the settings (*None*, *Less*, *Normal*, and *More*), then press **Enter** when the setting you want displays.

Ink-drying times are dependent on the type of media loaded, the setting specified by the front panel **Color/Mono** button, and the **Plotter setup/Dry time** setting. Note that you must use HP special inkjet paper for color plots.

**Ink Drying Times**

Dry time setting	Less			Normal			More		
	Color/Mono	Color	Mono	Color	Mono		Color	Mono	
Print Quality		Draft	Final Enh'd	Draft	Final Enh'd		Draft	Final Enh'd	
Spc. paper		0	0	0	0	0	0	0	0
Plain paper		—	15 40	—	30 85	—	—	30 115	—
Vellum		—	30 120	—	50 155	—	—	60 175	—
Film		—	— 180	—	— 360	—	—	— 540	—



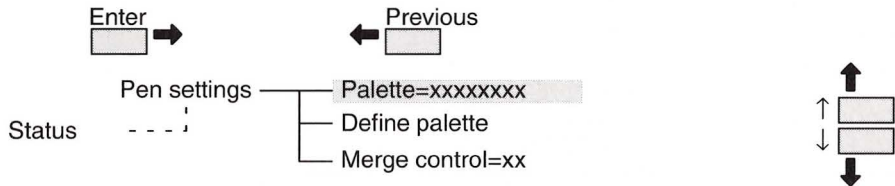
---

Defining pen settings

---

## Defining pen settings

The Pen settings menu lets you define the width and color of the plotter's "logical" (rather than physical) pens and indicate how you want overlapping lines to be plotted. The following shows the Pen settings menu (shaded options are on the short menu).



## Using pen palettes

By default, the plotter looks to your software to provide pen width and color information. If your software does not supply the plotter with this information for its pens or if you are working on an application that requires a specific color not in your software's palette, you might want to define your own palette using this menu.

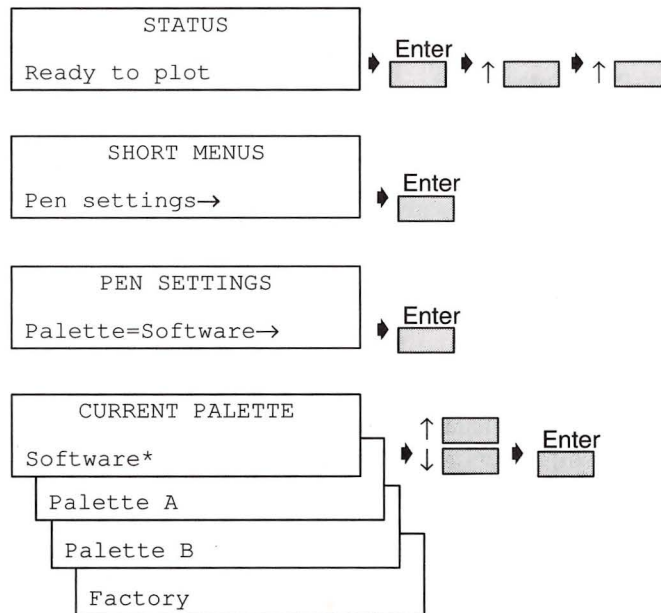
The plotter has three available palettes of pens. The factory palette cannot be changed. You can, however, change the line width and color settings for each pen on the remaining two palettes (called *palette A* and *palette B*). Initially, all three palettes are identical. Each palette has 16 pens which can include pens of different widths and any combination of the plotter's internal 256 colors. After defining the palette, load the palette for use. To review the available colors, print the demonstration palette plot (refer to chapter 1).

All menu modes  
Default: Software

## To load a pen palette

- 1 From the Status screen, press **Enter**. Press  $\uparrow$  twice to scroll to Pen settings, then press **Enter**. The currently loaded palette displays.
- 2 Press **Enter** to review the different palette options.
- 3 When the palette you want to load displays, press **Enter**.

Initially, the factory, A, and B palettes are identical. To change a palette, refer to “To define a pen palette” later in this chapter.



---

All menu modes

Defaults:

Width—0.35 mm

Color—(refer to the  
palette demo  
plot)

## To define a pen palette

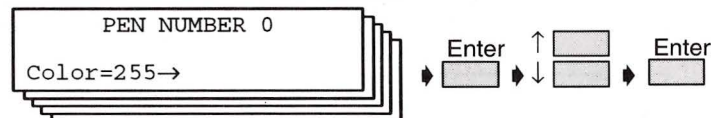
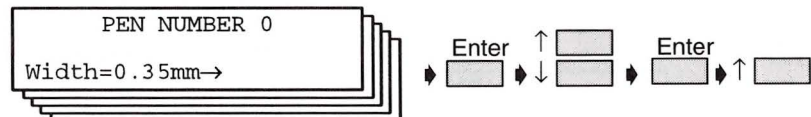
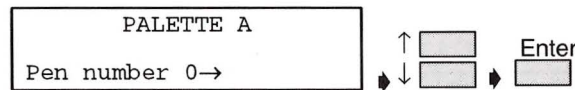
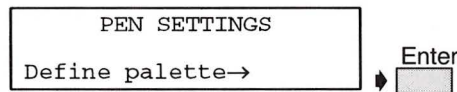
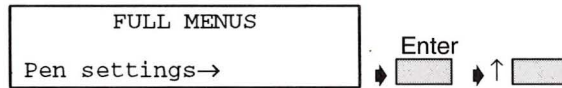
- 1 Plot the demonstration plot (chapter 1).
- 2 From the Status screen, press **Enter**. Press  $\uparrow$  twice to scroll to Pen settings, then press **Enter**.
- 3 Scroll to Define palette and press **Enter**.
- 4 When the palette you want to define displays, press **Enter**. You can define only palette A or B; the factory palette is only for viewing.
- 5 Select a pen number (0 to 15) to define for this palette and press **Enter**. The front panel displays the current pen width setting.
- 6 Use the following to change the width for this pen.
  - a Press **Enter**.
  - b Scroll to a new width for this pen and press **Enter**.
- 7 Use the following to specify the color for this pen.
  - a Scroll to Color and press **Enter**.
  - b Refer to the color palette plot (demo plot) for the number of the color you want.
  - c Scroll to the number and press **Enter**.

Use this option if your software does not supply color information to the plotter's "virtual" pens. Initially, the palette A and B are the same as the factory palette.

**Width** The default pen width is 0.35 mm. (Note that a one-pixel line width [0.13 mm] renders some colors as a dot pattern.)

**Color** You have a palette of 256 colors (0 to 255), including shades of gray. Refer to the plotter's demonstration plot (refer to chapter 1) for the number of the color you want to use.

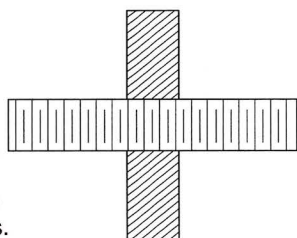
Once you have defined a palette, refer to "To load a pen palette" earlier in this chapter.



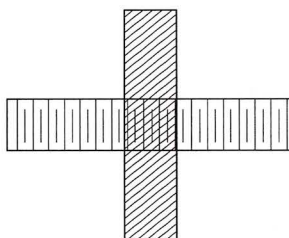
All menu modes  
Default: Off

## To control the appearance of overlapping lines

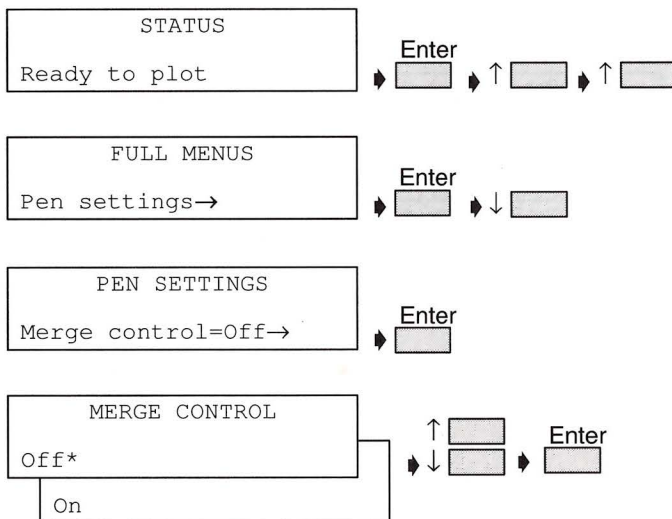
- 1 From the Status screen, press **Enter**. Press  $\uparrow$  twice to scroll to Pen settings, then press **Enter**.
- 2 Scroll to Merge control and press **Enter**. The front panel displays the current setting.
- 3 Press **Enter**, then press either scrolling button to display the setting you want and press **Enter**.



Merge control=Off  
(Default.) The last line  
overlaps previous lines.



Merge control=On  
Overlapping lines and  
area fills are merged.

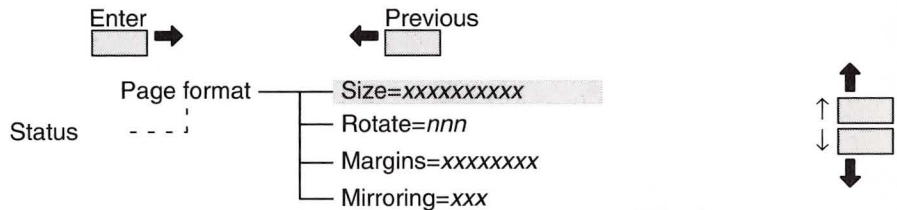




---

## Defining your page format

The Page format menu helps you specify how the plot appears on the page. The following shows the *Page format* menu options (shaded options are on the short menu).



With the exception of mirroring, you must specify your page format options *before* placing your plot in the plotter's queue. For example, the plotter determines the size of a plot at the time it is received and once you place a plot file in the queue, you cannot change its rotation.

## Page size and nesting

Page size is defined as the plotting area plus the margins added by the plotter. How the plotter determines what page size to use when rendering your plots depends on the front panel *Page format/Size* setting and whether or not your software sends an HP-GL/2 *page size* instruction. (HP-GL/2 is the plotter's graphics language instruction set.)

This page size also determines which plots are nested with another and whether the plots can be automatically rotated when nesting. If your software includes an HP-GL/2 *page size* instruction (and nesting is on), the plotter automatically rotates your plot to determine which orientation uses the least amount of roll media. If the roll media is smaller than the specified page size, the plot may be clipped; that is, the plotter will not be able to plot data near the edges of the plot.

If your software does not specify the page size (whether nesting is on or off), use the front panel *Size* option to set the plotting boundary. If the front panel specifies a plot size larger than the physical roll loaded, the plotter may clip the plot on the page.

---

## Specifying a page size

The following describe the front panel options and why you might want to choose one over another.

**Inked area** is the default. This setting reduces the amount of wasted media more than any other setting. The page size is the inked area of the plot plus margins added by the plotter, regardless of whether your software supplies page size information. Use this setting, too, for long-axis plots.

Use **Software** when you want the plotter to plot a page size specified by the HP-GL/2 *page size* instruction sent by your software. The plotter adds its margins to this page size, so take into account the inked area of the plot and sufficient margins or your plot may be clipped.

Use the **Best (standard size)** option when the plots you are creating need to be in a specific standard (for example, ISO or ANSI), but the actual size within that standard is not important. For example, your page size might need to conform to a standard ISO page size, but it is not important if the final page size is ISO A4 or ISO A3. The plotter uses the smallest standard size into which the inked area will fit.

Use a discrete standard size (for example, ISO A3) for either of the two following reasons.

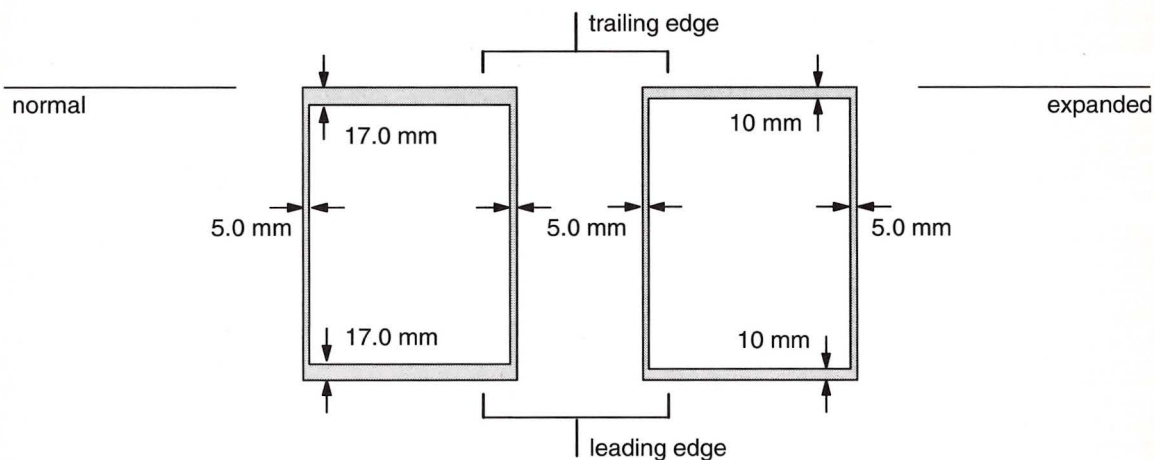
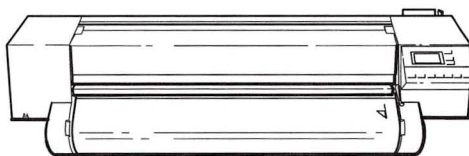
- When you are sending scalable plots that must be rendered at a specific size.
- When you want the final edges of your plot to conform to a standard size regardless of the amount of used plotting area within those borders.

If nesting is on and you have selected a discrete size, the plotter automatically rotates plots to determine which orientation uses the least amount of roll media. The plotter uses the amount of media specified here, regardless of how much room the plot data actually takes up.

## Getting the most from your roll media

Besides nesting and setting the page size, you can further reduce the amount of media waste by expanding the plotting area of the page. The two side margins are 5.0 mm. By default, the plotter uses margins of 17 mm on the leading and trailing edges of the media. By reducing the margins to 10 mm on the leading and trailing edges of the media, you can use 14 mm more plotting area along that axis. Refer to “To change the page margins” later in this chapter.

Sheet media uses normal margins only.



When Page format/Margins is set to Expand, the plotter waits for the plot to dry and the next plot to begin plotting before cutting the plot from the roll. If you press **Form Feed/Cut**, the plotter immediately cuts off the current plot. When the next plot begins, the plotter cuts again to give this plot the narrow margin.

---

All menu modes  
Default: Inked area

## To specify the page size

- 1 From the Status screen, press **Enter**. Press  $\uparrow$  to scroll to Page format, then press **Enter**. The current page size setting displays.
- 2 Press **Enter** and use the scrolling buttons to review the different page size standards and other options; the current setting is marked with an asterisk (\*).  
  
If you are choosing Inked area or Software, press **Enter** when your selection displays. This is the end of the procedure for these options.  
  
If you are choosing a specific page size standard (e.g., ISO or ANSI), press **Enter** when that standard displays and continue with the next step.
- 3 Scroll through the available sizes for your standard and press **Enter** when the size you want displays.

Inked area

(Default.) The plotter produces a page that includes only the inked area of the plot plus margins.

Software

The plotter looks to your software application for an HP-GL/2 *page size* instruction. If it is there, the plotter prints the page size and adds plotter-defined margins (the plot can still be nested). If the HP-GL/2 *page size* instruction is not there, the plotter produces a page that includes only the inked area of the plot plus margins.

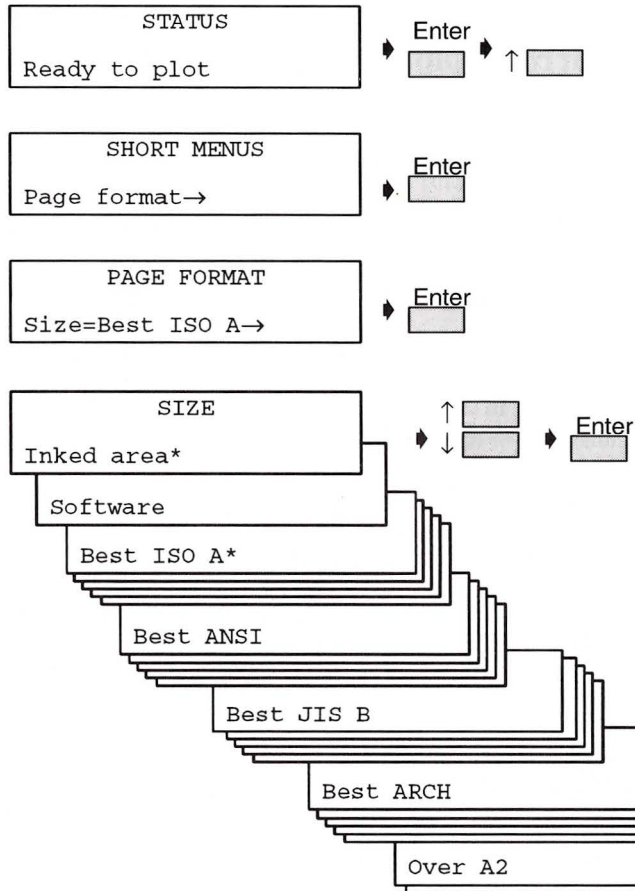
*standard size*

If you specify a discrete size (e.g., ISO A4), the plotter renders the plot as though a sheet of that size media is loaded (the plot can still be nested).

If you specify a “Best” standard, the plotter chooses the smallest page size that will hold the inked area of the plot. For example, if the inked area of the plot is between ISO A and ISO B, the plotter chooses ISO B as the page size and plots the drawing.

The largest page size you can specify or load is determined by the model of your plotter.

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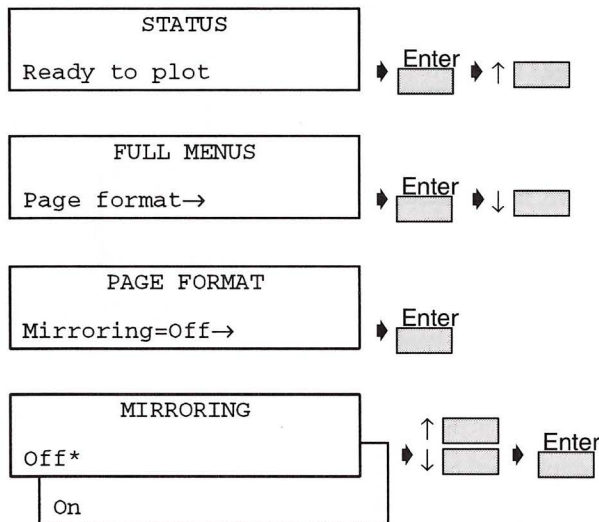
**Mirror**

Full menu mode  
Default: Off

**To mirror a plot**

- 1 From the Status screen, press **Enter**. Press  $\uparrow$  to scroll to Page format, then press **Enter**.
- 2 Scroll to Mirroring and press **Enter**. The current setting displays (either *Off* or *On*).
- 3 Press **Enter**, then use the scrolling buttons to change your selection and press **Enter**.

**Do not** change the setting during a plot, the change becomes effective immediately; that is, if you change the setting in the middle of the current plot, the remaining data is plotted in the mirrored orientation. The Mirroring setting stays in effect until you change it or turn off the machine. The default setting is “Off.”



Full menu mode  
Default: Normal

## To change the page margins

- 1 From the Status screen, press **Enter**. Press  $\uparrow$  to scroll to Page format, then press **Enter**.
- 2 Scroll to Margins and press **Enter**. The current setting displays (either *Expand* or *Normal*).
- 3 Press **Enter**, then use the scrolling buttons to change your selection and press **Enter**.

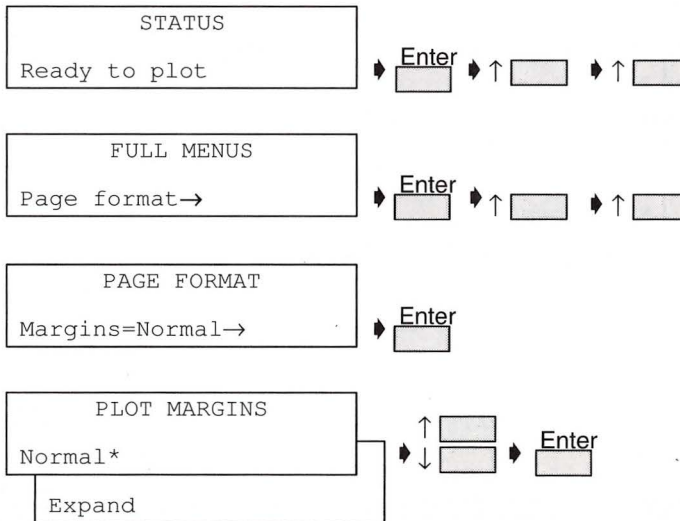
### Normal

(Default.) Leading and trailing edge margins are 17 mm.

### Expand

Expands the plotting area by reducing the leading and trailing edge margins to 10 mm. The plotter creates the trailing edge 10 mm margin after the next plot begins plotting.

You can change the margins on roll media only. For sheet media, the normal margins apply. Side margins for roll and sheet media are always 5 mm.



## Rotate

Full menu modes  
Default: 0

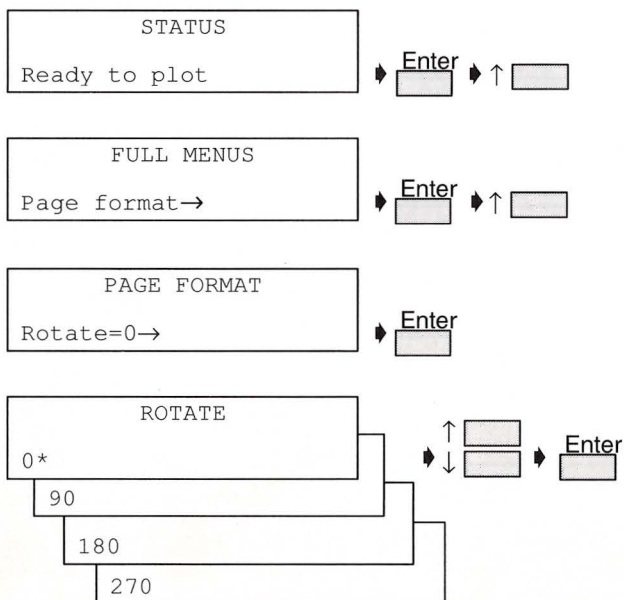
### To rotate a plot

- 1 From the Status screen, press **Enter**. Press  $\uparrow$  to scroll to Page format, then press **Enter**.
- 2 Scroll to Rotate and press **Enter**. The current rotation angle displays.
- 3 Press **Enter**, then use the scrolling buttons until the rotation angle you want displays, then press **Enter** to set it.

You can specify a rotation angle of 0 (default), 90, 180, or 270 degrees. The new angle of rotation affects the *next* plot sent to the plotter, not the one currently plotting, if any. This setting stays in effect until you change it or turn off the plotter.

The plotter adds the rotation setting to the rotation angle you specify in your software. For example, if your software specifies 180 degrees rotation, and you set Page format/Rotate to 90, your plot's final rotation will be 270 degrees.

Raster drawings cannot be rotated.



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Reference

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## Front panel messages

The following tables list all the messages displayed on the front panel, and descriptions of each message. They are listed alphabetically so you can look them up if you need clarification, or if you are unsure of what to do.

The front panel messages are divided into three categories.

- **State messages** tell you what the plotter is doing, has done, or is waiting for.
- **Action messages** prompt you to perform a specified action.
- **Error messages** indicate that either a user error or an internal error has occurred. Some action may be required.

### State messages

The following messages don't require you to take any action. They describe one of three things: the current state of the plotter (e.g., "STATUS / Ready for media"), the operation the plotter is currently performing (e.g., "Testing pens"), or the operation the plotter just finished performing (e.g., "Pen palette saved").

---

Message	State
Accessing pens	You have pressed the <b>Access Pens</b> button. The pen carriage is moving out so you can access it.
Aligning pens	Plotter is aligning pens.
Cancelling	You have pressed the <b>Cancel</b> button and the plotter is in the process of cancelling the procedure. You may continue when this message is no longer displayed.
Checking media	Plotter is checking to see if media is properly positioned with respect to the perforated line of the entry platen.
Creating calibration plot	Plotter is performing accuracy calibration.

Message	State
Ink drying (xx min xx sec)	The ink on your plot is drying. Wait before removing the plot. If you remove it before the indicated time has passed, avoid smearing the ink.
Loading roll	Plotter is loading roll media.
Loading sheet	Plotter is loading sheet media.
Measuring plot	Plotter is measuring the accuracy calibration plot you just loaded.
Returning pens	The pen carriage is returning to its station at the left of the plotter.
Roll feed Edge trim	Plotter is trimming the edge of roll media.
STATUS Initializing	Plotter is doing internal checking upon powerup.
STATUS Out of media	The plotter has detected that the roll is empty. Remove the old roll and insert a new one.
STATUS Plotting	Plotter is plotting.
STATUS Ready for media	Plotter is ready for you to load media.
STATUS Ready to plot	Plotter is ready to plot.
STATUS Receiving	Plotter has received plot data.
Testing pens	The plotter is testing the pens for problems, i.e., clogged pen or bad electrical connection (improper seating).

**Action messages****Action messages**

The following front panel messages prompt you to take action.

<b>Message</b>	<b>Action</b>
Calibration done Continue →	Accuracy calibration is complete. Press ↓ to continue.
Can't replot Resend plot	Replot buffer doesn't have enough memory to hold the entire plot. Resend the plot.
Close roll cover Continue →	Rewind the media to take up any slack in the roll, close the roll cover, then press ↓ to continue.
Create plot →	Press ↑ to create a calibration plot.
Measure plot →	Press ↓ to measure a calibration plot.
Lift lever	Lift the lever at the right of the plotter.
Load arrow edge print side down	Remove accuracy calibration plot, turn it so that the edge with arrows printed on it is print side down, then load that edge into the plotter.
Load cancelled Remove media	You pressed the <b>Cancel</b> button while media loading was in progress. Remove media.
Load media to align pens	Load media to proceed with pen alignment.
Lower lever after aligning	When you've finished aligning the roll media as instructed, lower the lever at the right of the plotter.
Lower window to continue	You have lifted the window while the processor is busy. Close the window to continue.
Open window to access pens	Lift the window to access the pens.
Pull ↓ / Align ↔ edges to roll	Grasp the left and right free edges of the roll media and pull toward you until the media is taut. At the same time, align the left and right edges of the media so that they are flush with the left and right edges of the roll. Refer to media loading instructions in the manual <i>Setting Up for Plotting</i> .
Remove media Continue →	Ink is dry; you can remove the accuracy calibration plot the plotter just produced. Press ↓ to continue with accuracy calibration.

Message	Action
Replace pen(s) ■■■■	Left pen has clogged nozzle. You must replace the left pen to continue.
Sheet load →	Press ↑ to load sheet media.
Roll load →	Press ↓ to load roll media.
Sheet / Roll? Reload media	<ul style="list-style-type: none"> <li>You have chosen Sheet mode while loading roll media. Reload media.</li> <li>You have loaded a sheet more than 51 inches (130 cm) long. Trim sheet and reload.</li> </ul>

## Error messages

These messages indicate either that a user error or an internal error has occurred. Some error messages require action to clear, and others are only displayed until the next operation is performed by the plotter.

Message	Error/Action
Alignment error Continue →	Either you lifted the window while pen alignment was proceeding, or the plotter experienced an internal alignment failure. Press ↓ to continue. You must reload media and start over with pen alignment.
Calibrate error Continue →	You loaded the calibration plot incorrectly and it could not be measured. Press ↓ to continue, then reload the plot for measurement. Follow front panel instructions.
Edge not found Reload media	Plotter could not find edge of media during loading procedure. Check the leading edge of the media for unevenness or tears; cut a straight edge, if necessary, and reload. Be sure to position the right edge along the perforated line on the entry platen when loading.
Error lowering bail	There is either an obstruction under the bail (remove it) or the cutter carriage is not pushed all the way to the right.
Load error Remove media	You inserted media with the lever up. Lower the lever and reload the media.
Lower lever to continue	You lifted the media lever while the processor was busy. Lower the lever to continue.

## Error messages

Message	Error/Action
Media too small	Media you loaded for accuracy calibration or pen alignment is too small. Reload appropriate media. Refer to chapter 8 for more information.
Mispositioned Reload roll	Roll is mispositioned. Reload media (refer to media loading instructions in the manual <i>Setting Up for Plotting</i> ).
Mispositioned Reload sheet	Sheet is mispositioned. Remove it and reload it with the right edge no more than 0.2 inches (0.5 cm) from either side of the perforated line on the entry platen.
MIO data error	You configured the modular interface incorrectly. Press <b>Enter</b> to clear the message from the front panel display. Recheck the MIO configuration settings.
MIO error Comm. break	You prematurely stopped the flow of data from the computer to the plotter (e.g., by turning off the computer before all data is sent). Press <b>Enter</b> to clear the message from the front panel display.
MIO error Handshake	You configured the modular interface incorrectly. Press <b>Enter</b> to clear the message from the front panel display. Check the handshake settings in the plotter's front panel, in the hardware configuration, and in your application software configuration to be sure they are compatible with each other.
Out of memory Data was lost	The current plot is too large for the plotter's buffer. You must install additional memory to plot this drawing.
Remove media Lower lever	You have attempted to load media while the lever at the right of the plotter was raised. Remove the media, lower the lever, and reload media with the lever down.
Roll misaligned Reload roll	Roll media is skewed. Reload media (refer to media loading instructions in the manual <i>Setting Up for Plotting</i> ).
RS-232 error Baud, parity	You configured the RS-232-C interface incorrectly. Press <b>Enter</b> to clear the message from the front panel display. Check the baud rate and parity settings in the front panel, in the hardware configuration, and in your software to be sure they are all compatible.
RS-232 error Handshake	You configured the RS-232-C interface incorrectly. Press <b>Enter</b> to clear the message from the front panel display. Check the handshake settings in the plotter's front panel, in the hardware configuration, and in your software to be sure they are all compatible.
Service pens Continue	→ Pen Check is on and an error has been detected. Press ↑ if you want to service the pens (replace or reseal). Press ↓ if you want to continue without servicing the pens. Refer to the manual <i>Setting Up for Plotting</i> if you want more information about replacing and reseating pens. →

## Error messages

Message	Error/Action
Sheet misaligned Reload sheet	Sheet media is skewed. Remove it and reload it so that the left and right edges being loaded into the plotter are square. The leading edge must also be straight.
Switch power off Check paper path	Turn off the plotter. The drive roller cannot move or the roll feed spindle cannot freely rotate. The plotter may be jammed with media. Check the media path and clear it if necessary (refer to the manual <i>Setting Up for Plotting</i> ). Then turn on the plotter.
Switch power off Check pen path	Turn off the plotter. The pen carriage cannot move. The plotter may be jammed with media. Check the media path and clear it if necessary (refer to the manual <i>Setting Up for Plotting</i> ). Then turn on the plotter.
System error XXXXXX	An internal error has occurred and a system error number is displayed. Press <b>Enter</b> ; this may clear the error and allow you to continue. If you cannot continue, turn off the plotter, then turn it on again. If you still see the system error message, record the system error number and have the plotter serviced.
Wrong pen type	You have loaded one or more incompatible pens. Replace the pens with those appropriate for this plotter.

---

## Glossary

**baud rate** For an RS-232-C interface, the data transmission rate between a computer and a peripheral (bits per second).

**Centronics** A parallel interface standard.

**communication** Data exchange between two or more devices.

**configuration** The way in which computer equipment and software is interconnected and set up to operate as a system.

**continuous memory** Plotter memory which stores certain plotter conditions even when the plotter is turned off.

**data communication** The exchange of data between devices.

**default** A value or condition that is assumed if no other value or condition is specified.

**dpi** Dots per inch, the plotter's addressable resolution on the media.

**driver** A program within software that uses configuration data to control input and output between the computer and a peripheral device (e.g., a plotter).

**handshake** RS-232-C communication between a computer and the plotter about the availability of I/O buffer space. A handshake ensures correct and complete data transfer.

**HP-GL** Hewlett-Packard's older graphics language for pen plotters.

**HP-GL/2** Hewlett-Packard's standard graphics language for its plotters.

**initialize** To set plotter conditions to known default values.

**interface** Anything (a cable, for example) used to join components of a computer system so they function in a compatible and coordinated fashion. Also, standards which allow systems to connect with each other (e.g., HP-IB, RS-232-C).

**I/O error** A data transmission error between a computer and a peripheral. Examples of I/O errors are mismatched interface conditions, such as baud rate and parity.

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**menu** Messages and options displayed on the plotter's front-panel display.

**nesting** Placing two or more plots horizontally on the media. On this plotter you can place up to four plots across roll media.

**overflow** To exceed the capacity of a buffer's storage space. When a buffer overflows, the excess data is lost.

**palette** A set of sixteen pens (numbered 0 through 15) for which width and % shading are defined from the plotter's front panel.

**parallel interface** An interface type in which a separate wire is used for each data bit in a byte or word and all bits are transferred simultaneously. HP-IB and Centronics are parallel interfaces.

**parity** An error-checking method for information transfer between a computer and a peripheral device. Parity is used to check the accuracy of binary data on a serial connection.

**raster** 1. A matrix of dots, or pixels, where each pixel is defined by a bit. A bit that is "on" will print a dot on the paper. A bit that is "off" will leave the area blank. 2. A method for defining a plot directly in terms of the pixels rather than as vectors.

**resolution** See dpi.

**RS-232-C interface** A serial interface standardized by the Electronic Industries Association Standard RS-232-C.

**serial interface** A serial interface uses a single data line to transfer data bits sequentially between devices. RS-232-C is a serial interface.

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